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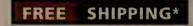
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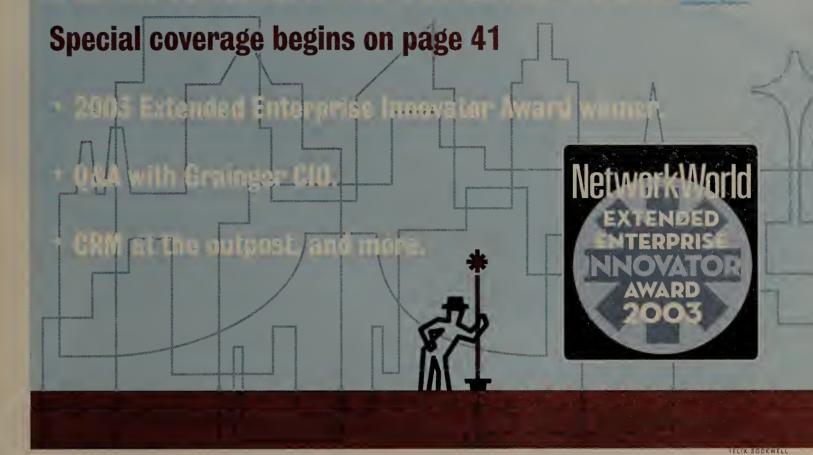
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## News

- **7** Vendors tout VolP at VoiceCon.
- **7** Security tools headline **Demo** show
- 10 IBM bolsters blade server lineup.
- 10 Network Appliance embraces iSCSI
- 14 Switch broadens wireless potential.
- 14 Array device protects biz traffic.
- 16 U.S. gets behind Enum network phone initiative.
- 17 McAfee pumps up security gateway.
- 17 ITWorx squeezes WAN traffic
- 18 Antispam tools multiplying like spam.

# **NetworkWorld**

### THE EXTENDED ENTERPRISE ISSUE



### Infrastructure

- 19 Users tout open source security.
- 19 Radvision links mobile, traditional video gear.
- **20** HIPAA prompts storage painings.
- **20 Brian Tolly:** Gig E to the desktop: Bargain or boondoggle?

### **Enterprise Applications**

- **23** Wanted: Blade server management software.
- **23** Cyber-Ark bolsters its data protection tool.
- **24 Scott Bradner:** Mission accomplished?

### **Service Providers**

- **27** Qwest looks to rebound with better customer service, VoIP.
- 27 Videoconferencing provider goes with Cable & Wireless offering.
- **28 Johna Till Johnson:** Blame the Sprint board, not Esrey and LeMay.

### **Net.Worker**

■ **31** Take a look inside 10 companies' remote work programs.

### **Technology Update**

- **33** Internet Fibre Channel Protocol melds Fibre Channel and IP.
- 33 Steve Blass: Ask Dr. Internet.
- 34 Mark Gibbs: Managing articles on your Web server.
- **34 Keith Shaw:** Cool tools, gizmos and other neat stuff.

### **Opinions**

- 36 Editorial: Shutting out the bad guys.
- **37 Daniel Blum:** Secure e-mail is worth the effort.
- **37 Thomas Nolle:** Can the 'Net ever be secure?
- 74 BackSpin: Racing to instant messaging.
- 74 'Net Buzz: Brazen criminal hackers show no fear . . . but a touch of "honor."

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### Columnists

### Compendium

Solving a NAT-ty problem
Fusion Executive Editor Adam Gaffin introduces you to Steve
Bellovin of AT&T Labs Research, who has come up with a
way to get a handle on just how many computers connect to
the 'Net from behind NAT boxes. **DocFinder: 4339** 

### **Telework Beat**

Call center outsourcer boosts telework

Net.Worker Managing Editor Toni Kistner examines how one company's call center technology helps firms increase flexibility and reduce costs. **DocFinder: 4340** 

### **Small Business Tech**

Do-it-yourself tech support

Columnist James Gaskin introduces remote and home-based workers to a host of free security and antispam products.

DocFinder: 4341

### **Digital Domicile**

Structured wiring and marble countertops
Building a new house? Mike Wolf tells you why you should
include a built-in network. **DocFinder: 4342** 

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# News

# Show spotlight to shine on IP voice

Alcatel, Avaya and Siemens among companies airing new products.

**■ BY PHIL HOCHMUTH** 

WASHINGTON, D.C. — This week's VoiceCon show promises to have convergence-hungry attendees anxious to dig into a variety of IP telephony fare at a time when budget woes have lesser priorities stuck on the back burner.

Companies such as Alcatel, Avaya, Mitel and Siemens will offer hardware and software aimed at letting users combine voice and data onto one network and take full advantage of converged applications. However, these vendors also will need to address nagging user concerns about IP telephony's sturdiness and ability to reduce IT costs.

VoiceCon is one of the few IT trade shows holding its own in this difficult economy. Three thousand are expected to attend, which would be an increase of 300 over last year. The number of exhibitors is up to 54 from 44 at last year's show.

As will be evidenced at the show, IP voice vendors are moving toward opening up and modularizing various parts of corporate telephony that are consolidated into one or two boxes in the proprietary PBX world. Equipment makers say this could

help make corporate phone and messaging systems less expensive to buy and maintain.

One analyst says the move to modularity is a long time coming for telephony gear.

"Overall, the telecom industry has been about 25 years behind the PC industry," says Brian Strachman, an analyst with Instat/MDR. Whereas many data networks have evolved into intelligent PCs at the endpoint attached to Intel-based servers, telecom products have remained "mainframe-like," Strachman says, with centralized processing and "dumb" phone terminals as endpoints. Migration

### **IP PBX boom**

IDC estimates the number of installed IP PBXs will jump from 2.6 million in 2002 to 34.6 million in 2007.

toward IP-based telephony, with voice as an application running on standard PC servers and over an IP network, could help businesses lower the price of voice system hardware and maintenance, he adds.

Alcatel is introducing its Omni-

PCX Enterprise, an upgrade of its OmniPCX 4400 phone switch, with native support for Session Initiation Protocol (SIP) and H.323. The box is an Intel server running Linux, as opposed to the proprietary hardware and Unix operating system used on the 4400 model. A digital card for the device will let Alcatel's circuit-switched phones be used on the system along with Alcatel's existing H.323-based IP phones.

Alcatel is not releasing its own SIP-based phone, the company says, but the OmniPCX Enterprise will work with other vendors' SIP-based phones, and is certified to operate with Pingtel's Expressa SIP phone and Windows Messenger, the SIP-based voice, video and instant-messaging client in Microsoft's Windows XP operating system. Alcatel says the product's nonproprietary hardware and software and its ability to be deployed on different types of SIP phones could help businesses lower costs.

Also, Avaya is introducing two messaging server products that could let customers deploy messaging anywhere throughout a company while supporting integrated voice/data applications. Avaya is migrating its Aria, Audix and Serenade voice mail platforms to its new S3400 Messaging Server, which is built on Intel hardware with support for Windows 2000 or Linux at the operating system level. The S3400 supports Multipurpose Internet Mail Extensions and Simple Mail Transfer Protocol, which let voice mail messaging integrate with e-mail clients more easily. Lightweight Directory Access

See VoiceCon, page 16

# Security tools headline Demo show

Vendors launch intrusion-prevention, key-distribution and vulnerability-assessment products.

More than 60 products and services will be launched this week at Demo, a conference sponsored by IDG Executive Forums, a division of Network World. With security uppermost in everyone's mind these days, we selected three of the most interesting security products slated to debut at the show and asked Network World Global Test Alliance partner Mandy Andress to evaluate these products from BBX, MagiQ and SigmaSecurity.

# Show blogs Goto our Fusion blog, where Features Editor Neal Weinberg and Seminars and Events Editor Sandra Gittlen will keep you updated on the coolest new products being launched at Demo. DocFinder: 4348 WWW.NWfusion.com

### Product: OS Network Vendor: BBX Technologies Description: Intrusion prevention for Windows systems

A second-generation intrusion-prevention technology that acts as an immune system for Windows-based machines, OS Network monitors kernel operations and can identify unauthorized executables or authorized executables violating security policy.

If it finds an irregularity, OS Network takes action — deleting the unauthorized file and restoring any system files or registry entries that might have been corrupted or modified.

Several other intrusion-prevention products are on the market, including Entercept and

Okena (recently purchased by Cisco). OS Network differs from these products by focusing solely on the executable. Okena focuses on behavior profiling and Entercept focuses on specific attacks, such as buffer overflows. OS Network does not prevent the attack. It prevents the executable from causing any damage to the system. Additionally, OS Network is designed to work on servers, desktops and laptops. Another version of the product, OS Network Extend Shield, is available to protect the content of static Web sites.

After installation, OS Network takes a baseline of the system and uses that information to monitor for new and unauthorized executables. Centralized management is available for reporting. If administrators need to install new software on protected systems, they "lower the shield," install the necessary applications, then raise the shield to re-enable protection.

OS Network does not require signatures or periodic

administration, logging and

OS Network does not require signatures or periodic updates to function properly. Once installed and the policy set, it can continue securing systems indefinitely. This lowers administration costs and

provides more robust protection than signature-based intrusion-detection products.

OS Network can best be viewed as the last layer in an organization's comprehensive defense-in-depth strategy, complementing fire-walls, network intrusion-detection systems and antivirus products already installed in the organization. Intrusion prevention has been the buzzword in the security industry the past few years, and the technology has not yet taken off, mainly because of end-user frustration with too many false positives. Employees cannot do their jobs if their computers are constantly stopping actions they feel are malicious or against policy.

See Demo, page 18



8 NetworkWorld 2 17 03 www.nwfusion.com



### **Powell puts brakes on UNE-P vote**

Federal Communications Commission Chairman Michael Powell postponed the commission's vote on unbundled network elementplatform changes scheduled for last week after a Republican commissioner submitted a rival plan that won the support of the FCC's two Democratic commissioners, according to several media reports citing anonymous insider sources. Powell had hoped to pass a plan that gradually would phase out UNE-Ps. The rival plan would let individual states decide whether to keep UNE-P. The vote is scheduled for this week.

### Final HIPAA standards published

■ The Health and Human Services Administration announced last week that the final security standards for the Health Insurance Portability and Accountability Act of 1996 have been published. The security portion deals with the confidential, secure storage and transmission of patient health information. It works in concert with a privacy portion, for which IT organizations have to establish procedures by April 14. Most healthcare organizations will have until April 21, 2005 to fully comply. The final standards are available at www.nwfusion.com, DocFinder: 4349. See related story, page 20.

### **NIST issues border ID recommendations**

■ The National Institute of Standards and Technology has recommended using fingerprint and facial recognition technology for identification purposes at the nation's borders. A NIST study, mandated under the Patriot Act and the Enhanced Border Security Act, states that at least two fingerprints should be used to positively identify visa applicants. NIST also recommends a dual system of face and fingerprints to verify the identity of visa holders at points of entry into the U.S.

### Sun memo shows Java in bad light . . .

Senior engineers at Sun had serious doubts about using Java to build commercial applications for the company's Solaris operating system, according to a memo written by a Sun engineer that recently was leaked onto the Internet. "While the Java language provides many advantages over C and C++, its implementation on Solaris presents barriers to the delivery of reliable applications. These barriers prevent general acceptance of Java for production software within Sun," according to the memo. The undated memo appears as something of an embarrassment for Sun, suggesting that the company had trouble implementing Java, which it invented, on its operating system. The company downplayed the significance of the memo, however, calling it "a 2year-old document, which refers to an old implementation of Java technology, It doesn't represent Sun's position or the reality of our implementation today. The issues mentioned in the memo are irrelevant at this point," the company said in a statement.

### . . . while Microsoft counters Java ruling

💐 Microsoft last week continued its quest to turn the tide in an antitrust case brought is tit by rival Sun by asking the U.S. Court of Appeals for the Fourth Circuit to set aside

### 

### **Biblical Web services**

A Green of hodox church has a public Web service that lets you get a verse of the Bible by the line in a SOAP message with the verse's number.

Read more at www.nwfusion.com, DocFinder: 4345.

### **TheGoodTheBadTheUgly**



He should know. Moore's Law has at least another 10 years of life left in it. Says who? Gordon Moore, Intel co-founder and author of the axiom that holds that the number of transistors on a chip doubles every couple of years. "Another decade is probably straightforward," Moore said at a conference last week. "There is certainly no end to creativity."

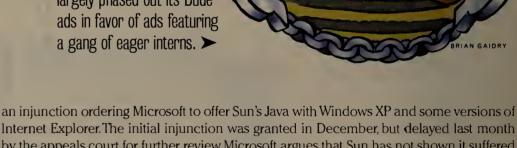


Hacker target. Notorious hacker Kevin Mitnick's company, Defensive Thinking, last week acknowledged that its Web site has been hacked. "I suppose if you were a young hacker and wanted to prove your skills, this is the place to go. It reminds me of the movie 'The Gunfighter,'" said Mitnick, whose federal probation on hacking charges ended recently. The whole thing smacks



**Goodbye Dell,** hello cell? Actor Benjamin Curtis, the "Dude, yer gettin' a Dell' guy of advertising fame (or infamy), was arrested last week in New York for allegedly possessing marijuana. That's a misdemeanor charge that carries a prison sentence of up to three months in the event of a conviction. No word yet on whether the situation will result in Curtis' relationship with Dell going up in smoke, but the company has already largely phased out its Dude ads in favor of ads featuring

of a marketing stunt to us.



Internet Explorer. The initial injunction was granted in December, but delayed last month by the appeals court for further review. Microsoft argues that Sun has not shown it suffered immediate and irreparable harm, which is required to enter a preliminary injunction.

### Sprint saga continues

As Sprint and BellSouth work with a court-ordered arbitrator to determine whether BellSouth Executive Vice President Gary Forsee can become Sprint's new chief, Sprint's current top executives remain on hold (see related story, page 28). Sprint's board of directors reportedly is pushing Chairman and CEO William Esrey and President and COO Ronald LeMay out the door because of questionable practices regarding their personal taxes. In a new twist last week, Sprint accounting firm Ernst & Young is saying that the stock options involved in the tax shelters it advised for Esrey and LeMay should be taxed after all.

### **Bush in cyberspace**

■ On Friday, the White House released the "National Strategy to Protect Cyberspace," which pulls back from some of the more controversial statements of the earlier draft, particularly regarding ISPs or universities failing to do as much as they might to help secure networks. But the final report does touch on some newer areas of interest to the White House, which wants to see federal agencies pull together under the newlyformed Department of Homeland Security to have a 24-7 cyberspace response center. The report advocates having the General Service Administration and other agencies set up "test beds" to learn how to patch computer systems quickly. The report also urges agencies to practice "cyberspace preparedness" exercises as the Defense Department now does.

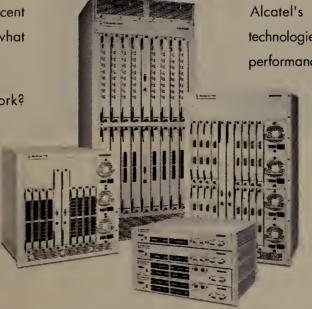


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10 NetworkWorld 2/17/03 News www.nwfusion.com

# IBM bolsters blade server lineup

**BY ANN BEDNARZ** 

ARMONK, N.Y.—IBM is beefing up capacity and adding advanced network features to its blade server family, which the computer giant envisions could change the way companies assemble, provision and manage their data center resources.

On tap this year from IBM is an embedded Layer 4/Layer 7 LAN switch module; four-way blades based on Intel processors and IBM's own Power technology; and faster Intel chips for IBM's existing two-way blade products.

Blade servers pack more computing power into smaller containers than their traditional rackmounted server brethren, letting companies save precious data center space. They share resources such as power supplies

and cooling fans, and consolidate server cabling requirements for components such as a mouse, keyboard and printer.

Blade servers also enable multiserver management capabilities, which is something customers have sought for years, says David Freund, an analyst at Illuminata. (See related story, page 23.)

RLX Technologies and Egenera were the first to market blade servers, followed by the major server players HP, Dell, IBM and Sun.

IBM, which began shipping blade servers in December, expects 2003 will be the year of the blade server, says Jeff Benck, director of IBM's eServer line. Already IBM has sold 5,000 blades, Benck says. According to The Yankee Group, the worldwide market for blade servers will

explode from \$95 million in 2002 to \$3.78 billion by 2006.

IBM's current eServer Blade-Center chassis can accommodate up to 14 two-way Intel Xeon processor-based blades in a 7U-high enclosure and features an integrated Ethernet LAN switch. The chassis also includes a 2G bit/sec Fibre Channel switch and offers optional Fibre Channel connections to external storage-area networks (SAN). The chassis is designed to accommodate future InfiniBand connections, IRM save

Big Blue planned ahead when designing its chassis, Freund says. "IBM overengineered Blade-Center and gave it incredibly beefy power supplies and airflow characteristics that were just massive overkill for the servers they were first shipping. But what they

### **Blade conditions**

IBM is off to a quick start selling blade servers, but interoperability challenges remain.

### Strengths

- Consistent management software across multiple IBM server products.
- Existing chassis can handle excess heat generated by future four-way blades.
- Broad operating system support.

### Challenges

- Lacks support for third-party storage arrays.
- Lacks management capabilities for third-party blade products.

had in mind was to come out with even more powerful things," Freund says.

Later this year, IBM plans to unveil a third-party-built Layer 4/ Layer 7 switch module. IBM has been working with switch vendors such as Nortel and Cisco to create a module with more advanced network capabilities than those in its current LAN switch module, which is a basic Layer 2 switch for handling connectivity of the 14-server chassis, Benck says.

"We recognize that while we have the server expertise, when it comes to networking and some of the software solutions, we need partners to deliver a complete set," he says. "Layer 4 to Layer 7 is one of the areas that we're very focused on. It's absolutely on our road map, and you'll see it this year."

Higher-layer switch functions mean users could potentially use the BladeCenter for network traffic routing and server load balancing and resource allocation, eliminating the need for dedicated devices, analysts say.

IBM also is planning a performance lift for its two-way blades. Over the next few months, IBM will boost processing power in its BladeCenter HS20 product from 2.4-GHz Intel Xeon processors to 2.6-GHz and 2.8-GHz processors.

Later in the year, IBM plans to roll out a four-processor Intel-based blade, and another based on IBM's Power processor technology, which runs IBM's AIX-flavor Unix systems. Users will be able to insert the higher-performance four-processor blades, which can support 64-bit applications, into their existing chassis, Benck says.

The four-way blades will allow for broader operating system support. IBM's blades today support 32-bit Microsoft Windows 2000 Server and Advanced Server, Red Hat Linux, SuSE Linux and Novell NetWare operating systems. "As we move to Power processing technology, we will be able to support AlX as well," Benck says.

Fourway blades are geared for workload-intensive applications, such as messaging, database and ERP applications. To the Genome Sequencing Center (GSC) at Washington University in St. Louis, IBM's four-way technology is promising. "Anything that increases density, we're interested in," says Kelly Carpenter, IT manager for GSC, which runs compute-intense bioinformatics and DNA-sequencing applications.

GSC started looking into blade servers to increase its compute-power per square foot, Carpenter says. It bought a 75-blade Blade-Center system, which is slated to go into production the first week of March. Before the BladeCenter buy, "we hadn't particularly been a big IBM site," Carpenter says.

But while the other blade server vendors were working with Pentium 3 blades, IBM was one of the first to offer a Pentium 4 Xeon blade, he says. That clinched the deal.

IBM isn't the only vendor targeting storage connectivity and heftier processing. HP in January announced a four-processor server blade, the HP ProLiant BL40p, which enables Fibre Channel SAN and network-attached storage connections. It will begin shipping next month, HP says. HP's existing dual-processor ProLiant BL20p blade server also features SAN connectivity.

For its part, Sun last week announced a 64-bit blade server that uses its UltraSPARC processor. It also announced plans for a 32-bit blade with an Intel-compatible processor.

# Net App embraces iSCSI

BY DENI CONNOR

SUNNYVALE, CALIF. — Network Appliance didn't waste any time last week, announcing support for iSCSI on two existing arrays/file servers just as the protocol was becoming an Internet Engineering Task Force proposed standard.

The iSCSI specification, which was given the go-ahead by the IETI's governing body, lets SCSI data be transported across IP networks, such as Ethernet. Proponents say iSCSI promises storage networks that are less expensive and more flexible than Fibre Channel-based storage networks.

Network Appliance, in addition to IBM, is among the first major storage suppliers to adopt iSCSI in an array or file server. Other companies such as Nichan Systems suppliers to the companies such as Nichan Systems suppliers.

panies, such as Nishan Systems, support the technology in storage routers.

"Network Appliance is enabling a more flexible approach for customers that want to use IP for storage" says Jamie Gruener, a senior analyst with The Yankee Group. "Having the target environment [the array/file server] ready, should go a long way toward coving iSCSI adoption."

with work Appliance's iSCSI support entails free softwincour its FAS900 and F800 series arrays/file servers, and a \$700 Intel Pro/1000T IP storage adapter to reside in a host server.

One use—ws he will test iSCSI, which can handle block-level of a as a complement to other protocols such as Network File System (NFS).

"We have some information that can't run over

### **ISCSI** in action Network Appliance's support for iSCSI will let companies transport SCSI data over existing Ethernet LANs. 💵 An end user makes a file 🛮 😢 The server, outfitted with an Intel Pro/1000T IP Storage request to a server. Adapter, routes the request to a Network Appliance file server. Server with Intel Pro/1000T IP Storage Gigabit Ethernet backbone 3 The file server, with Network Appliance iSCSI software Request file via iSCSI loaded, retrieves the file and delivers it to the user over **Network Appliance file** Ethernet via iSCSI protocol.

NFS," says Joe Bishop, database systems engineer for Titan Averstar, working out of the Jet Propulsion Laboratory in Pasadena, Calif. "For users who need SCSI for their low-level Solaris data, we're looking at iSCSI to get the data to our Net App filer."

In other Network Appliance news, the company says it has doubled the capacity of its NearStore R150 array to 24 terabytes. The array, which uses inexpensive Advanced Technology Attachment drives, is primarily for storing images that don't change over time or as a repository for data that has been backed up. The array, which starts at \$250,000 for the 24-terabyte edition, also will now serve as a back-up appliance for storage arrays from other vendors, including EMC, HP and Hitachi.

Network Appliance: www.networkappliance.com



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THE POSSIBILITIES ARE INFINITE

# Modularity High-End Data Storage

### Mid Range Functionality Making it's Way into the High End

- By Steve Kenniston

### **Evolution of Storage Arrays**

Over the past two years IT professionals have seen a dramatic change in storage hardware. The new shift today is in making storage modular. We have seen features such as, dual redundant everything, higher RAID functionality, performance and snapshotting, move from the high storage arrays to the midrange and even to some of the low end storage arrays. IT has come to rely on and even expect these features all the while expecting them at considerable price reduction.

As this modularity shift takes place, the real question becomes, "What happens at the high end of the storage market?" The reality is that there will always be a segment of the IT community that has requirements for both heavy I/O bandwidth and some sort of global caching requirements that can handle sustained performance and keep that performance when there are "load hits". This group of users will always spend money seeking the benefit

By centralizing the storage, all the ancillary processes that come with managing storage, such as replication and backup, become easier and less costly for IT.

of the highest performance arrays. Until recently, the size of the enterprise market was finite however, the prospects of modularity clearly expand the opportunities. So the next question becomes what features are end users requesting in this space. Much like the enterprise features have moved their way into the midrange, we now expect to see the benefits of midrange modularity move into the enterprise. Figure 1 shows that over time, functionality has moved its way into the midrange and low end, while modularity is moving its way into the high end. End users are now getting more functionality in the midrange and low end for less money and getting more performance and flexible scalability (though modularity) in the high end for a lower cost of entry.

### Modularity at the High-End

As grid computing takes off over the next few years, it will be the job of the storage vendors to be able to keep up with the performance, scalability and flexibility. The only way this will happen is to make storage as modular as the compute and networking resources. The importance behind this is both ease of deployment and cost. IT consumers are getting used to the "pay-as-you-grow" sales mantra that has become popular in this economy. IT professionals will be looking to build very robust, scalable, high performing SANs with the advantage of

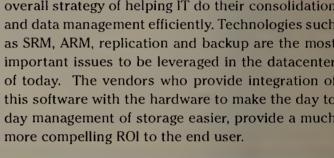
cost effective entry points and highly flexible increments of storage capacity and performance without having to shell out lots of money to build up the infrastructure.

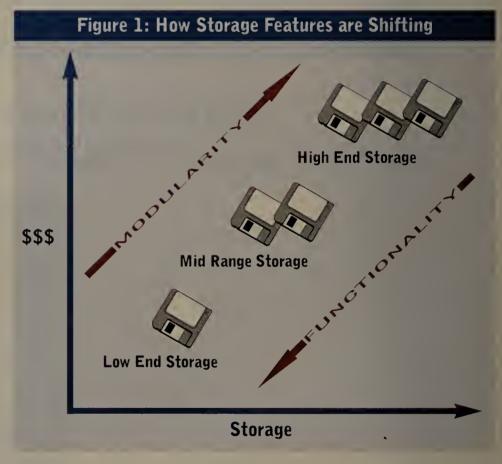
High-end storage always used to have the reputation for being a "closed box" system. By modularizing storage at the high end, a number of opportunities open up both inside and outside the datacenter. The ability to have high end, modular storage that does not have all the power, cooling and raised floor requirements that are necessary for the current high-end systems, provides opportunities for high-end computing remote offices (and decentralized applications) and removes network bottleneck

issues that exist today. Modularity also opens up new opportunities for IT professionals looking to support critical applications and initiatives such as datacenter consolidation, disaster recovery and business continuity. These benefits make datacenter solutions easier and less expensive to build and put companies in a better position to yield higher ROI on business initiatives.

Aside from high end computer processing, high end storage also helps IT with data center consolidation. Data center consolidation is becoming more important to IT shops. High end storage gives IT shops the ability to centralize storage capacity. performance and availability and maximize management capabilities. By centralizing the storage, all the ancillary processes that come with managing storage, such as replication and backup, become easier and less costly for IT. Storage management software is very important to the overall strategy of helping IT do their consolidation and data management efficiently. Technologies such as SRM, ARM, replication and backup are the most important issues to be leveraged in the datacenter of today. The vendors who provide integration of this software with the hardware to make the day to day management of storage easier, provide a much

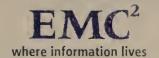
**Enterprise** 





Last year was a big year for vendors to tout the advancements in storage management software and users to start seeking better efficiencies. This year it looks like we are going to hear lot about the physical packaging and economic advantage that modularity is now set to play in the future of both enterprise and utility storage infrastructure. Modularity gets us there.

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# Switch broadens wireless capabilities

Vivato offering blurs distinction of what wireless switches can do.

### BY JOHN COX

SAN FRANCISCO — Start-up Vivato last week released details of what it calls the first true Wi-Fi switch — details that add fuel to a simmering debate over just what constitutes a wireless LAN switch.

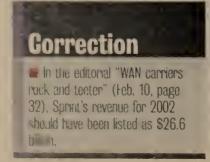
The company this week will begin shipping to beta testers its wall-mounted, indoor device, which features specialized antenna technology designed to direct, focus and quickly shift narrow radio beams among 802.11b clients.

By contrast, recently announced wireless switches from Aruba Networks, Proxim and others are in essence Ethernet switches with software that centralizes and manages security and access policies, and applies higher-layer switching functions, such as quality of service, to wireless packets. Most of these vendors also plan to deploy streamlined access points that are little more than 2.4-GHz radios tethered to the switch.

Vivato, which started up in late 2000 and has collected more than \$25 million in venture and other funding, blends an Ethernet switch with an 802.11b access point, and a phased array antenna. That combination is designed to let the switch perform a number of tasks unique among indoor wireless LANs (see graphic).

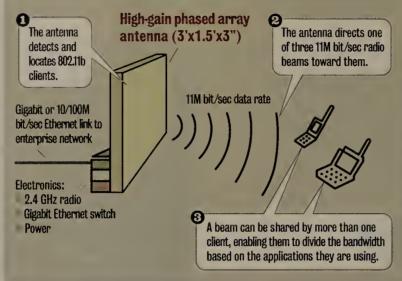
The sensitive antenna locks on to wireless clients and then directs one of up to three narrow, focused 11M bit/sec radio beams to each client. The beams can jump, on a per-packet basis, from one client to another, according to Vivato.

If there are several clients in the beam path, the 802.11 protocols take over, and the clients automatically share the available bandwidth, says Phil Belanger, vice president of marketing.



### Sharing the wealth

Vivato's 802.11b wireless switch employs powerful antenna technology to share bandwidth among clients.



The switch's design lets the radio beams reach 900 feet inside a typical office building, depending on construction materials and furnishings, Belanger says. By contrast, most 802.11b access points, using a less-sensitive omnidirectional antenna, have a maximum

range of 300 feet.

Belanger says extra range means a single Vivato box can "light up" an entire office floor, eliminating the need to spread traditional access points, priced from \$300 to \$1,200, all over the space, and then spend still more money to cable them into a

wiring closet. The Vivato switch costs roughly \$9,000.

All these products are so new that the claims, or counterclaims, can't be sorted out yet. "This [Vivato] technology seems to be an outdoor technology, similar to that used by ArrayCom and others in cellular networks," says Keerti Melkote, vice president of product management for rival start-up Aruba. "But it's not proven indoors."

Melkote questions whether, even if the phased array antennas can transmit successfully over such distances, the client adapter cards, with their omnidirectional antennas, have enough power to reach the Vivato switch. Another issue with longer distances, he says, is how Vivato handles the time limit for acknowledgements between access point and client.

Aruba's approach relies on the standardization and dropping costs of wireless access points, he says. This trend will let enterprise users pack inexpensive access points in fairly dense concentrations, to ensure that all users have optimal throughput.

"This is silly," says Doug Klein, CTO for Vernier Networks, which offers what it calls a control server to centralize security and management for wireless LANs. "Everyone is now arguing about the semantics of what is a switch."

He argues that these new products are addressing real problems but are doing so with proprietary technologies. Ethernet succeeded, and 802.11 has begun to catch on in corporations, because of accepted standards, he says. Standards also are needed to address issues regarding handling wireless packets, managing thousands of access points and enabling wired infrastructure to deal with mobile clients, he adds.

"All the end users really care about is 'What is my aggregate throughput?' and 'Can I maintain that?'" Klein says.

Vernier and other wireless gateway companies such as Cranite and Bluesocket are moving to extend their existing products to become more like switches.

# Array device protects biz traffic

### **BY TIM GREENE**

CAMPBELL, CALIF — Array Networks is introducing security hardware and software that could make it possible for businesses to reduce the number of devices they use to protect their networks from Internet-borne threats.

Array SP 6.0 can inspect and filter HTTP traffic as well as decrypt and filter Secure Sockets Layer (SSL) traffic that typically is allowed to pass freely through firewalls. It also will load-balance among the Web servers it protects, cache frequently accessed sites and compress traffic.

The latest version of Array's security platform expands the role of the device, which sits on the LAN side of corporate firewalls, where it inspects Web traffic. Formerly, the device acted as a proxy between remote users and Web servers in corporate networks. Remote users create SSL links with the Array box, and it acts as a go-between with Web servers on the LAN.

Array is among a group of vendors, including Fortinet, NetContinuum, TippingPoint Technologies, Blue Coat Systems and F5 Networks, trying to offer security and traffic management in one device, says Richard

Steinnon, research director for network security at Gartner. The key problem that needs addressing is that Internet traffic and attachments that come into Web and mail servers can carry viruses and worms. "Gartner sees the need for appli-

cation-layer defenses in front of those servers," he says.

Such application-layer firewalls sit in the same spot on the network where load balancers and SSL accelerators are located, so it makes sense for them to include those functions, Steinnon says.

"This reduces network complexity dramatically," says Chris Maune, director of business development and product marketing at Sun, which is looking at the Array gear for possible partnerships.

The primary value of the Array SP device is that it can secure and simplify access to Web servers, says Andy Sutton, manager of network services for Texas Health Resources, a hospital system in Arlington, Texas. It secures access by creating SSL remote access links over the Internet from



Array Networks' Array SP blends security and traffic-management features.

Web browsers. Software does not need to be installed on the remote machines, Sutton says.

Also, by proxying to Web servers, Array SPs eliminate the need to physically move the servers into a secure network segment separate

from the rest of the LAN, saving a large investment in time and effort, he says.

The heart of Array's technology is the ability to decrypt and dissect packets once and then share the information with multiple applications, reducing delay and processing power required to perform multiple functions. "They tear down packets and pass them through a series of filters for virus signatures, protocol anomalies and key words," Steinnon says.

Array SP 6.0 is based on new hardware that boosts its encryption speed by 30% and increases the number of simultaneous Web sessions it supports from 600 to 32,000. It will be available next month for \$50,000. A smaller version, Array SP-C, costs \$15,000.

Array: www.arraynetworks.net



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### U.S. backs Enum network phone initiative

#### BY GILLIAN LAW

The U.S. Department of Commerce has recommended that the U.S. join an international electronic numbering domain system called Enum.

Enum lets an end user type a telephone number into a Web browser and access a listing of Internet resources for that number, such as addresses for IP telephony, e-mail or Web sites. The Internet Engineering Task Force developed it and is implementing it in coordination with the International Telecommunications Union (ITU) and the Internet Architecture Board (IAB). The IAB has set aside a global domain, e164.arpa, for the system.

Under the protocol, each user's phone number would be translated to an Enum identifier. The number +44 20 7291 5981, for example, would become 1.8.9.5. 1.9.2.7.0.2.4.4.e164.arpa. The Enum system would then recognize all addresses and numbers associated with that signifier.

In a letter posted to the Commerce Department's Web site last week, National Telecommunications and Information Administration (NTIA) administrator Nancy Victory wrote to the U.S. Department of State that Enum "has the potential to facilitate convergence of communications networks by linking e-mail addresses, telephone numbers, fax numbers and cell phone numbers for individuals or businesses."

The U.S. should "seize this opportunity and take steps to participate," Victory said.

Thus far, 13 ITU member countries have opted into e164.arpa and are beginning trials to establish Enum services. It is time for the U.S. to become more active on this issue, she said, she said.

The NTIA has developed principles to ensure Enum can be implemented while protecting competition, interoperability, security and privacy. These include preserving national sovereignty and the right to decide if Enum will be implemented, the letter said.

Law is a correspondent with the IDG News Service's London bureau.

### **VoiceCon**

continued from page 7

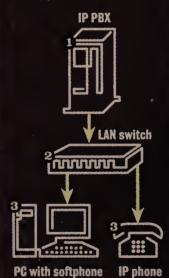
Protocol support also can let the device integrate with other user directories, enabling single signon to voice and e-mail, while making user accounts easier to administer.

The S3400 will support H.323 and SIP IP telephony protocols (expected to be available later this year), which will let the device be attached anywhere in a corporate LAN or over a WAN; traditional voice mail servers required ISDN or T-1 interfaces directly to a PBX.

Siemens is going along with the modularity trend by rebranding its IP PBX software as a separate platform it calls Com-

## Potential added costs with VolP

Users and experts say the proposed cost advantages of IP telephony could be offset by LAN upgrades that might be necessary to support voice.



### 1 IP PBXs:

- Intel-based IP PBX servers might have to be upgraded more frequently than traditional large PBXs, which often have shelf lives of 10-plus years.
- Risks of viruses, worms and DoS attacks to servers could increase total cost of ownership.
- 2 Network infrastructure:
- Older switches and hubs that do not support QoS standards such as 802.1p, 802.1Q or Diff-Serv might have to be swapped out.
- Power over LAN gear might have to be deployed if users want to power IP phones centrally.
- 3 Desktop:
- IP phones might require additional outlets for power at desktops.
- Some IP phones, and softphones on PCs, occasionally need rebooting; traditional circuit-switched phones do not.

# If we can do that for a nominal price and give remote users seamless access to our phone system, then it's worth it.

### **Scott Bradley**

Director of telecommunications, Utah State University, on incorporating IP into the campus phone system

Scendo. ComScendo will include all the features of the past HiPath 3000, 4000 and 5000 IP PBXs and will come bundled with those systems. Siemens says that future versions of ComScendo will give users the choice of deploying IP telephony call control in various server platforms, such as Unix, Windows or Linux.

Siemens also is introducing the optiPoint 400 IP phone with SIP and H.323 support, and the optiPoint 600 IP/circuit-switched phone, which works with Siemens IP and traditional PBXs. Also being released is the new optiClient 130 softphone, which gives users all the HiPath IP PBX features, plus additional capabilities such as organizing conference calls by dragging and dropping names from a directory application. A USB handset device for the optiClient 130 also is available.

Mitel Networks will announce a survivability feature for its ICP 3300 IP PBX that lets remote IPC 3300s continue communicating over ISDN lines in the event of an IP WAN link failure. Mitel will introduce a module for the ICP 3300 that will let Nortel Norstar circuit-switched PBX phones be used with the IP-based Mitel box. The module is based on technology from Citel, which makes a similar product for 3Com's IP PBX.

In addition to the deployment benefits of these kinds of modular systems, Instat/MDR's Strachman says IP voice technology can help companies administer large voice networks with fewer people.

"Over 20% of the [\$5 billion] PBX market revenue comes from maintenance and services," Strachman says. The fact that moves, adds and changes in IP telephony are similar to PC administration, and do not have to be done by specialized staff or consultants, is one of the cost benefits.

For three-year VoiceCon veteran Scott Bradley, director of telecommunications at Utah State University in Logan, the idea of using IP voice technology to extend his traditional telephony service to remote locations is appealing.

"Many of our [remote campus branches] could be incorporated into our campus phone system using IP," Bradley says. The school is piloting IP PBX and phone equipment from Cisco in conjunction with a large on-campus PBX from Intecom, which supports more than 5,000 students and faculty. If we can do that for a nominal price and give remote users seamless access to our phone system, then it's worth it," he says.

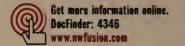
Bradley says he likes the fact that IP telephony will reduce administration costs and allow for less-expensive telecom gear based on commodity hardware. However, there are other issues he must factor in, such as the price he would have to pay to upgrade his LAN to support voice and concerns about voice over IP (VoIP) security and power. Other issues include where IP telephony would work best.

"There are two kinds of IP telephony in my view," Bradley says: "inside the moat," meaning large headquarters deployments of IP telephony to desktops, and "outside the moat," where VoIP is used to connect remote offices. "IP telephony is more of an outside-the-moat application, for now," he says.

Additionally, Bradley says, he has been disappointed with the amount of features IP PBX vendors have had to offer on their gear — typically fewer than 100 — compared with the 500-plus features he has available on his PBX.

"All those [PBX features] that exist today have been evolving over decades, and they're all there for a reason," Bradley says. But he adds that he has seen improvement in the market.

"Every year I come to VoiceCon, they seem to be getting closer," he says, referring to vendors delivering products that he wants. ■



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# McAfee pumps up security gateway

CipherTrust, others roll out new wares to combat viruses and spam.

### **■ BY ELLEN MESSMER AND JASON MESERVE**

Network Associates' McAfee Security division last week introduced a version of its antivirus and content-filtering appliance that can process twice the number of messages as the company's previous high-end offering at just a fifth more of the price.

McAfee says the WebShield e1000, which starts at \$20,500, can scan 160,000 Simple Mail Transfer Protocol messages per hour for worms, viruses and unauthorized content. McAfee plans to add antispam technology obtained through its recent acquisition of a company called DeerSoft.

The appliance, which has 10/100M bit/sec and Gigabit Ethernet interfaces, typically sits between a firewall and a

McAfee competes with Symantec and others that are packing more capabilities into their security gateway products that provide an alternative to installing and managing separate antivirus, spam-filtering and contentfiltering products.

"There can be performance advantages in having the varied security functions done on one box instead of forcing the traffic through four or five separate boxes," says Eric Hemmendinger, research director for security and privacy at Aberdeen Group. "One box also takes up a lot less space."

Also in this market is Blue Coat Systems, which this week will introduce the SG-400 Web Security Appliance for antivirus, instant messaging and content filtering at remote offices with up to 100 end users. The \$3,500 device is designed to be managed through a corporate central office, and can control caching and bandwidth allocation

in addition to security. Unlike the McAfee product, the Blue Coat offering does not handle SMTP traffic filtering.

Another player in the market is CipherTrust, which is taking the next step in the cat-and-mouse game played by spammers and those looking to stop them with the Enterprise Spam Profiler (ESP) option for its IronMail gateway appliance. The device, which starts at \$27,000 when configured with ESP software, also can handle antivirus protection and act as a firewall for e-mail

ESP uses five spamdetection techniques to score an incoming message and determine an overall "spam confidence value." Depending on the value, a message can be discarded immediately or quarantined for review. Previously, IronMail had a gamut of spam filters that a message passed through, with any one filter being able to raise a red flag and block a message.

"It's like France on the United Nations' Security Council: They can veto a whole measure," says Matt Anthony, direc-

### **Protective shield**

McAfee Security's Web-Shield e1000 appliance scans for viruses and worms in Web traffic.

- Scans up to 160,000 messages per hour or 2M byte/sec of HTTP traffic.
- Two or more can be bridged for high availability.
- Reports activity to the McAfee ePolicy Orchestrator console.
- Cost \$20,500 for up to 1,000 end users.

tor of marketing at CipherTrust. "Instead, we're looking at all filters as data points that paint an overall picture."

An automatic whitelisting feature has been added to IronMail that allows certain e-mail addresses a free pass after a specified number of correspondences. For example, a newsletter from a user group that could be identified as spam but is not could be added to the whitelist to let it pass to the intended recipients without being quarantined.

"The auto whitelisting will be a boon to us," says Carl Howell, systems engineer at the University of West Florida in Pensacola, which is snagging about 60,000 spams at the 100,000 e-mails the university receives daily. "As people get auto whitelisted, it should help shrink the number of false positives."

In other security news:

• RSA Security will introduce PKZIP-based encryption and data-compression software designed in partnership with PKWare. The product, RSA SureFile, can be

used as a stand-alone application for file compression, encryption

> based on the Advanced Encryption Standard and signing with X.509 digital certificates, or with RSA's public-key infrastructure product,

RSA Keon. Pricing starts at \$80 per seat.

 Sophos has announced Web-based software designed to send antivirus software updates to remote or mobile workers' computers. The Remote Update package runs on Microsoft Internet Information Server or Apache Web servers. It costs \$30 per seat for a 100-seat license. ■

# ITWorx device puts the squeeze on WAN traffic

### **■ BY TIM GREENE**

BURLINGTON, MASS. — Businesses looking to make better use of expensive WAN links have a new option: a PC-based Linux appliance that compresses data traffic so businesses can send more over existing connections without having to buy bigger pipes.

Eight-year-old ITWorx is introducing the device, called Net-Celera, which the company says will use data compression techniques to cut the volume of traffic at least in half and by as much as 90%.

two of the devices and place one at each end of a WAN link between the router and the LAN. Like other compression vendors such as Expand Networks and Peribit Networks, ITWorx's compression technology works by examining traffic for patterns that repeat, then replacing them with shorter patterns that it keeps



ITWorx says its NetCelera device can reduce WAN traffic volumes by

track of in a library.

NetCelera is different from competing products because it examines traffic at the session layer, Layer 5, says CEO Youssri Helmy. Layer 5 compression means the device can differentiate session streams within all the traffic on a wire, such as a file transfer vs. a client-server application. NetCelera then can develop a unique compression library, maximizing the compression for each session up to 8,000 sessions, he says. Other vendors' compression methods use a single library for all traffic on a particular physical connection.

NetCelera doesn't try to compress video or voice-over-IP traffic because they are already compressed. Further attempts to compress them with Net-Celera's current technology would yield minimal improvements that would not be worth the processing power, Helmy says. But he says the company is developing software for a later release that will compress voice enough to make the effort worthwhile.

While its data compression technology might give it an advantage in the market, IT-Worx has its work cut out for it, savs John Cordova, an analyst with Infonetics. Competitors, such as Expand, Packeteer and Peribit, all offer another key feature along with compression: traffic shaping. This is significant because packet-shaping and compression gear occupy the same space in a network, and putting both functions in one box simplifies matters, he

### **66** Maybe just being a compression box right now isn't enough.

John Cordova

Analyst, Infonetics

says. Similarly, vendors such as Array Networks are adding compression to their multiservice security platforms, and many router vendors now offer compression as an option on their gear.

"Maybe just being a compression box right now isn't enough," Cordova says. Within a few years compression and others of these features will be primarily sold as options on routers, he says, and customers will take that road rather than add another box to their networks. But he says compression can save companies from buying larger WAN connections, particularly expensive international lines, and that can pay for the equipment within months.

NetCelera has two 10/100M bit/sec Ethernet ports that connect it to the router on one side and the LAN on the other. If the device fails, it passes traffic through untouched.

NetCelera is priced depending on the size of the WAN link it supports. For example, a box for a 128K bit/sec line costs \$2,500 and one that supports a T-1 costs

ITWorks:www.itworks.com



# Antispam tools multiplying like spam

**BY JOHN FONTANA** 

As spam continues to roll over corporate networks in ever-larger quantities, the cavalry of vendors offering defenses continues to grow as well.

No fewer than five vendors are shipping or are about to release new products designed to keep spam from polluting corporate e-mail systems.

This week, MailFrontier plans to release a gateway product and upgrades to its client software at

the Demo 2003 conference, which is being held in Scottsdale, Ariz., and run by IDG Executive Forums, a division of Network

Also this week, Sunbelt Software will unveil the server edition of its lHateSpam filtering software.

Singlefin last week introduced its Local Messaging Switch, a corporate gateway spam filter.

Stealth start-up Q-Spam will announce its new name and product in March, and Tumble-Weed in April is expected to release a new spam module for its SecureMail product.

The spate of products not only highlight the options that companies have for building perimeter defenses against spam, but also reinforces the commonly held notion that spammers remain a step ahead. Spam blocker Postini reports that it filtered more than 600 million spam messages in the last 30 days, more than a 50% jump from just five months ago.

"The problem is that the spammers can react faster than the

guys providing tools against it," says Dan Keldsen, senior analyst at Delphi Group. However, he says the tools are becoming more sophisticated.

Many companies are offering multiple levels of filtering, including so-called blacklists and whitelists, and content filtering, that aggregate their results into a evaluation. Other tools streamline administration, such as adding automated updating services much like antivirus software.

MailFrontier's Anti-Spam Gate-

way includes five spam-filtering techniques, including dynamic whitelists, which are built automatically with a user's contacts and existing e-mail threads. The gateway also is updated automatically with known spam thumbprints collected from MailFrontier users.

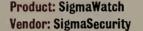
www.nwfusion.com

Sunbelt is releasing its first server-based product, which is designed for Microsoft Exchange. The server uses a scoring system to weed out spam from legitimate mail and is policy-driven so filtering can be tuned per user. Sunbelt also taps the 40,000 users of its client software to profile spam and create filter updates for the server.

Singlefin's Local Messaging Switch, which uses a three-layer evaluation process, is an outgrowth of its hosted service for spam blocking and content filtering. Companies run the switch locally and have a Web-based interface to set policies, but Singlefin administers the server remotely and offers its hosted network as a backup.

In the coming months, Q-Spam's co-founders Linus Upson and Felix Lin will introduce a spam product they say borrows heavily from the mobile software synchronization technology they developed at their previous company, AvantGo.

And TumbleWeed is expected to deliver in April its Dynamic Anti-Spam module that plugs into its SecureMail 5.5.The service will offer automatic updates of heuristic techniques, and rules and patterns for identifying spam.



### continued from page 7

Demo

OS Network might bring intrusion-prevention technology to the forefront of the security industry again, and if successful, might continue to expand the must-haves for any enterprise security infrastructure.

**Product: Navajo Vendor: MagiQ Description:** Key distribution based on quantum computing

Navajo is a Quantum Key Distribution system for securing communication. In secure communications, one of the most difficult steps is secure communication of encryption keys. Only the parties who wish to exchange information should know these keys. How do you know the key has not been intercepted or cannot be easily figured out?

Current cryptography theory relies on complex mathematical computations, which take time to solve. With the increasing availability of computing power, cracking the code becomes easier, rendering secure communications readable, and exposing sensitive and confidential information.

Quantum computing uses the principles of physics, not math, to create secure communications. The principles of physics are problems that cannot be forced to decipher encrypted communications and the keys generated are random and secure. The information is encoded photon by photon via fiber-optic link. Any eavesdropping or snooping on the line by a malicious party would change the photon, making it known that it was tampered with.

Navajo does not want to replace existing cryptographic communications. Instead, it is a key distribution system based on Heisenberg's Uncertainty Principle that provides a hybrid model using quantum computing to provide secure distribution of existing cryptography keys, such as those based on Advance Encryption Standard. This method provides organizations a solution to the problem of how to securely exchange cryptographic keys. One drawback to current quantum computing systems, though, is that they do not work over long distances.

Navajo is a plug-and-play system that can fit in virtually any environment. Cryptography keys can be exchanged securely, up to 1,000 times per second, ensuring the confidentiality of sensitive information as it travels across the network or is stored on a system.

Quantum computing provides a new approach to the problem of how to exchange information securely. As the reliance on the exchange of information continues to grow, the ecurity of that information becomes critical. Quantum computing might be the field that provides more secure communication schemes.



SigmaWatch, SigmaSecurity's vulnerability-assessment tool, runs on SigmaSecurity's Predator appliance platform.

### Description: Linux-based vulnerability-assessment appliance

SigmaWatch, SigmaSecurity's debut into the already crowded vulnerability-assessment market, is a Common Vulnerabilities and Exposures-based vulnerability-assessment and remediation product that runs on SigmaSecurity's Predator. In this configuration, SigmaWatch supports approximately 255 IP addresses. More robust platforms are available from SigmaSecurity to provide assessment and remediation for larger organizations.

SigmaWatch runs on a hardened version of the Red Hat Linux operating system and takes advantage of many open source tools, and SigmaSecurity's proprietary-assessment engine. Vulnerability signature updates are received automatically through a Secure Sockets Layer communications engine, ensuring the latest vulnerabilities and check scripts are available for use in a scan. Administration occurs through a Web interface, with the ability to launch scans on demand or schedule them to launch periodically, such as daily, weekly or monthly. Scans also can be incremental or differential, providing administrators a quick and easy way to see what has

changed on their systems and network over the last week or month. SigmaSecurity says the vulnerability tests are nonintrusive and administrators can configure the intensity of testing, controlling how much network bandwidth a scan consumes during execution. Groups also can be created, allowing some servers, such as critical Web servers, to be scanned daily, while other systems could be scanned weekly. Reports are generated in PDF format and include information detailing the identified vulnerability. A pair of SigmaWatch appliances can be configured for high availability using a serial connection to maintain heartbeat.

While SigmaWatch says the product provides remediation capabilities, they are not automatic. SigmaWatch, like most vulnerability-assessment products, provides links or instructions for administrators to follow to correct the identified vulnerability on the affected system.

Even thought the vulnerability-assessment market is getting overcrowded, SigmaSecurity can succeed if the assessment engine is accurate, providing strong assessments of Windows and Unix/Linux systems. SigmaSecurity has taken the right approach, pricing its product lower than most of the existing commercial

solutions, with SigmaWatch on Predator starting at \$3,500.

DocFinder: 5434 www.nwfusion.com

Andress is president of ArcSec Technologies, a security company focusing on product reviews and analysis. She can be reached at mandy@arcsec.com.



Which industry executive is the primary focus of new books titled Perfect Enough and Backfire?

Answer this and nine additional questions online and you could win \$500! Visit Network World Fusion and enter 2349 in the Search box. WWW.TWTUSTOF.COM



### Looking Deeper, Reaching Farther

An intelligent network infrastructure featuring Cisco routers enhances the value of IT investments across the extended enterprise.

Successful companies run on information. It's that simple, and this reality drives unprecedented demands—and opportunities—for the people at the wheel of the enterprise network. Consider the case of one Global 100 manufacturer: With four technical assistance centers, a dozen regional offices, and more than 300 independent dealerships across the U.S., it's no simple feat to keep the bits flowing.

Yet flow they do, and not just in the form of data. By deploying high-performance, feature-rich Cisco routers at key sites, the company was able to extend IP telephony services securely across its wide-area network. As a result, they cut the cost of calls to the technical assistance centers by eliminating the need for separate phone services, increased employee productivity by reducing the amount of time spent searching for information, and improved customer service by ensuring everyone is up-to-speed on products and services.

**Is it the Network, or the Application?** Yes. Because the applications that are transforming business today are completely reliant on the enterprise network. By investing in an intelligent network infrastructure, companies create a highly secure, robust foundation for any number of applications, and even help improve performance of those applications for users throughout the company. And that allows them to reap a greater return on countless IT investments—past, present, and future.

### **High Availability**

These days, it's hard to distinguish the network from the company. If one stops working, so does the other. That's why networks based on equipment from Cisco Systems offer unsurpassed availability, and, just as importantly, unsurpassed resilience in the face of interruptions.

To maintain productivity—and by extension, profitability—networks must be available all the time, providing employees with global, around-the-clock access to business applications and information, while ensuring appropriate internet access.

And since a network is only as reliable as its weakest link, all segments must be resilient enough to immediately bounce back from unexpected connection, component, or power failures.

To some extent, availability depends on the overall design of the network. In many cases, companies will deploy dual routers with the Hot Standby Routing Protocol that Cisco pioneered, enabling one device to seamlessly take over if the other one fails.

But availability also hinges on the design of the individual routers themselves. That's why Cisco builds layers of redundancy and resiliency into the hardware, from backup processors and power supplies to hot-swappable line cards.

Such safeguards work in tandem with Cisco IOS® Software features, including several recent enhancements collectively known as Globally Resilient IP, or GRIP. Cisco Nonstop Forwarding with Stateful Switchover, for example, enables a router's primary and backup processors to synchronize state information. That way, if a hardware or software problem knocks out the primary processor, the backup processor will pick up where it left off, without needing to reboot the system or line cards, and without losing a single data packet.

And because Cisco IOS Software runs from the enterprise backbone to the outermost reaches of the WAN, these capabilities can increase the availability of every segment of your network, and increase the productivity of every branch of your company.

The Answer is Cisco—As the worldwide leader in networking for the Internet, Cisco offers the industry's largest and most versatile portfolio of routers to suit every need, from the home office to the branch office to the enterprise campus. Modular designs allow you to expand network services incrementally as new needs and opportunities arise.

Integrated features such as virtual private network services, firewalls, intrusion detection systems, content delivery, survivable remote site telephony, inline power, and low-density switching allow you to confidently deploy the most demanding solutions, including converged data, voice, and video applications.

Cisco routers also offer a unique level of investment protection. Cisco Systems devotes approximately 18 percent of sales to R&D, giving our engineers unmatched resources to build upon established products and technologies. Take Cisco IOS® Software, for example, the operating system that unifies all Cisco routers and switches and provides most of the intelligence in the network. At this very moment, 1,200 people are working to enhance and expand the capabilities that have made it a pillar of networks the world over.

By designing products with the future in mind, Cisco offers the best value over the long term. New features and functionality can be incorporated as needs change and technologies evolve, which lowers the total cost of ownership by saving you the expense of replacing something that won't be supported a year or two down the road.

And at Cisco, support means much more than simply providing hardware and software. As *Fortune* magazine recently observed, "Whenever there is a problem big or small, the folks running the networks in corporations know they can call Cisco."

That peace of mind might not be your only motive for building an intelligent infrastructure with Cisco routers and switches, but it's a surefire sign of an intelligent investment.

Learn how Cisco routers can offer your company a greater return on its investments in technology.

www.nwfusion.com/cisco/infrastructure

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# CISCO SYSTEMS

### **Superior Manageability**

While an intelligent infrastructure offers powerful benefits, managing something so sophisticated can sound overwhelming, particularly to a harried IT department. But with the right tools, you can actually simplify most administrative tasks even as you gain greater control over network resources.

Cisco Systems provides those tools, ensuring you can capture all the benefits of an intelligent network infrastructure, without having to be an expert on every feature and capability.

One reason is that Cisco IOS® Software unifies all Cisco switches, routers, and other devices, creating a network that is inherently more manageable and providing a rich source of data to help you optimize network operations.

Drawing on that rich IOS data and unmatched industry expertise, Cisco has built best practices into the CiscoWorks family of Web-based network management tools, helping you to streamline management tasks and secure your network from end to end.

CiscoWorks templates and wizards simplify and automate complex configurations to help you implement security policies, use QoS to prioritize traffic for IP telephony or other time-sensitive applications, and manage a range of other operations. These tools also help prevent human errors—mistakes that can open holes in security or even bring down the network, cutting into your company's profits.

If a problem does occur, you won't be caught off guard. A properly managed intelligent infrastructure continually monitors for faults, and can even spot deteriorating conditions before they get out of hand, providing a safety net for your business.

CiscoWorks management applications give you the visibility to monitor the impact of the network policies and priorities you establish, and the flexibility to fine-tune things as you go along, and add new technology as your needs change and the network grows. As a result, you can get more out of your business applications today, and also do a better job of planning for the future.

If that sounds like good news just for the IT department, consider this: It's been estimated that for every dollar a company spends on new technology, it can spend another four trying to make it work. So it stands to reason that the better you're managing your network, the better you're managing your business.

# mirastructur

- TCP/IP, LAN/WAN SWITCHES
- **ROUTERS** HUBS
- **ACCESS DEVICES III CLIENTS**
- SERVERS . OPERATING SYSTEMS
- VPNS M NETWORKED STORAGE

- Apple last week launched a midrange storage array and a new version of its Xserve server. The Xserve RAID storage system is a 3U-high enclosure containing as much as 2.5 terabytes of Fibre Channelattached Advanced Technology Attached storage. It uses a 2G bit/sec Apple Fibre Channel PCI card to connect to the server. The new Xserve has a faster 1.33-GHz processor and system bus, and faster memory and I/O. The company has expanded the size of the disk drives up to 720G bytes of storage and added IP over FireWire support for clustering. The Xserve RAID starts at \$6,000. One-CPU Xserve server starts at \$2,800. Both are expected to be available next month. www.apple.com
- Novell will ship the next version of its flagship network operating system, NetWare 6.5, code-named Nakoma, by midyear. Nakoma will feature simplified administration, better access and improved storage administration. It will include a virtual office that lets users from any Webenabled device access e-mail, network files and applications. Nakoma also will incorporate the Silverstream application server, as well as Apache and Tomcat Web applications and MySQL database. As part of its enhanced storage management features, Nakoma will support iSCSI, software-based RAID 1 and 5, snapshot backup, storage resource management and data-pooling. It also will include integrated DirXML connectivity to Windows NT domains and Active Directory and support for blade servers and management. www.novell.com
- **I Juon** last week announced the SuperStack 3 Switch 4228G, a 28port 10/100M bit/sec switch with two copper and two modular Gigabit Ethernet ports. The Layer 2 switch is targeted at wiring closets and can be deployed in stacks of four and managed with a single IP address. The switch is available now for \$920. www.3com.com

# **Users tout open source security**

Network administrators using do-it-yourself technology to keep costs down.

### **BY PHIL HOCHMUTH**

ROCHESTER, N.Y.—When the right technology doesn't exist or isn't available at the right price, many large companies get creative and build their own custom systems, such as routers, firewalls or VPN gear.

Linux and open source software is proving to be a valuable tool for businesses that have taken the build-it-yourself approach when it comes to some network systems. Many say the software included in Linux and in some free software packages is as good or better than commercial offerings and costs less to deploy.

When Rochester Midland was looking to move frame relay to a multisite IP Security (IPSec)-based VPN last year, Tony Karakashina, then a network administrator for the company, was charged with rolling out the network.

He first had companies such as Cisco, Check Point and Nokia in mind for implementing the company's firewall and VPN infrastructure. Then he was told that he would have to set up the network as inexpensively as possible.

"Why pay \$20,000 on firewall products, which require a lot of work and are not 100% secure anyway?" he says. Instead, he decided to experiment with Linux-based PCs and an open source IPSec VPN software package called Free Secure/WAN (Free S/WAN). He used surplus PCs the company had in storage (Pentium 133-MHz and Pentium II 400-MHz machines).

"When I said we had most of the hardware already to build the network and that the software would be free, [management] liked that idea," he says.

Free S/WAN is an open source software package that can be installed on Linux servers and lets them act as site-to-site and remote-access VPN gateways. The software can be used to establish secure connections between two networks over the Internet or to connect PCs with a Windows XP VPN client to the corporate network.

Karakashina then had the challenge of bringing T-1 WAN connectivity hardware to the Linux/VPN PCs.

"Since most people don't plug a T1 connection directly into a PC," Karakashina says, there were limited products from which to choose. He chose \$850 T-1 cards from Sangoma Technologies, which makes modules that fit into a PC's PCl bus and supported Linux drivers for the hardware.

One key to making the open source VPN work, Karakashina says, was a good working knowledge of Linux. He had experience working with Linux from his college days, which helped when he had to configure and tweak the Linux software on the VPN PCs to get the Sangoma cards to work with the operating system.

The result of the project was a savings of several thousand dollars per month for Rochester Midland by switching from point-to-point frame relay service to an

See VPN, page 20

### Radvision links mobile, traditional video gear

### **BY JASON MESERVE**

GLEN ROCK, N.J. — Radvision is bringing a piece of science fiction to reality with the release of a new gateway that

connects video-enabled mobile phones on a 3G wireless network with traditional videoconferencing equipment on the LAN.

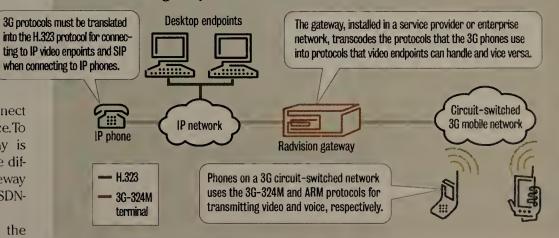
Currently, the limited number of video-enabled phones can communicate only with similar devices

on the same network and cannot connect back into a traditional videoconference. To connect the two worlds, a gateway is needed to translate (or transcode) the different protocols used, much like a gateway is needed between traditional IP and ISDNbased videoconferencing endpoints.

For multimedia communications, the new ViaIP GW-P20/M Gateway transcodes between the 3G-324M standard used in wideband Code Division Multiple Access and CDMA2000-based mobile phones to H.323 used in traditional IP desktop and group videoconferencing endpoints. The gateway also can be used for voice calls, translating between the AMR voice protocol used in the 3G world to G.711 on the IP side, says Eli Doron, founder and

### Gateway to a 3G world

Radvision's GW-P20/M gateway enables two-way audio and video communication between 3G mobile phones and traditional IP videoconferencing endpoints located on a LAN.



CTO of Radvision.

With the gateway mobile phones can participate in point-to-point or multipoint (if a separate multipoint control unit is used) videoconference.

One challenge that Radvision faces is the limited number of 3G-enabled mobile services available. According to Probe Research, there are six carriers in the world offering 3G service, with Japan's NTT Do-CoMo having the oldest and most widely known service. A handful of other carriers have 3G offerings, but limited handset availability.

Radvision does have some competition with Ericsson, which is testing its Video Gateway System in Italy, Hong Kong and

See Radvision, page 20

20 Nut workWorld 2/17/03 Infrastructure www.nwfusion.com

# TOLLY ON TECHNOLOGY



verywhere I turn these days I hear rumblings about Gigabit Ethernet to the desktop. We are seeing white papers touting the joys and benefits of delivering 10 times the bandwidth of a traditional Fast Ethernet network interface card at a fraction of the cost.

Surely, many folks are excited about Gigabit Ethernet to the desktop and big bandwidth returns. But what's really needed now is for everyone to take a deep breath and exhale . . . and then look at Gigabit Ethernet from a broader, cost-of-ownership prospective.

Recently, The Tolly Group completed a project looking at the viability of Gigabit Ethernet over copper to the desktop. In the

### Gig E to the desktop: Bargain or boondoggle?

study, The Tolly Group benchmarked the performance of a couple of copper Gigabit Ethernet NiC installed in a highend desktop machine across a few different operating systems. We then analyzed the results and compared the performance with the price/performance that traditional Fast Ethernet NiCs delivered.

With the costs for Gigabit Ethernet NICs having dropped dramatically in the past 12 months, prices for these interfaces are hovering at commodity levels. You can pick up a name-brand Gigabit Ethernet NIC during your next visit to CompUSA for less than \$80. Even last May, Dell announced that its high-end desktop line was migrating to and standardizing on an onboard Gigabit Ethernet NIC in place of Fast Ethernet. One thing no one is talking about is the cost for plugging in these NICs at the switch.

While consumers no longer have to pay a premium for Gigabit Ethernet NICs, there is no bargain when it comes to the switch ports. Using a current price list from one of the major switching vendors, we calculated the cost per port for a typical workgroup switch for both Fast Ethernet and Gigabit Ethernet. The results were simply staggering.

A 48-port Fast Ethernet switch at list price delivered a per-port cost of a little more than \$100 per port, while a similar stackable for Gigabit Ethernet was more than \$700 per port for a name-brand product from a premier switch makers. That is roughly a seven times cost for a Gigabit Ethernet copper port over the cost of a 10/100 port. But wait; there's more.

Beyond the upfront switch port and NIC costs, there is the cost of real estate in terms of rack space. Where it is common to obtain 48 ports in a 1U or 2U form factor for Fast Ethernet ports, the Gigabit Ethernet switch cannot support the port density, allowing only about half the number of Gigabit Ethernet ports in the same form factor.

So you say seven times isn't bad — not for 10 times the performance. It might not

be bad if we were talking \$10 per port vs. \$70 per port. Unfortunately, we are talking 10 times that. That isn't chump change, and if you're looking to deploy Gigabit Ethernet to the desktop across 1,000 users, costs can mount up.

What really is amazing is the NIC vendors have proven that the cost of these chips is down to commodity prices (I doubt the NIC vendors have the motto of "Sell at a loss, we will make it up in volume!"). Then why are the switching vendors still demanding the premium for these chips?

Next time your friendly switching salesman comes calling, ask him to explain the premium-pricing issue to you, then drop us a line and let us know if any of it makes sense.

Tolly is a senior engineer with The Tolly Group, a strategic consulting and independent testing company in Manasquan, N.J. He can be reached at btolly@tolly.com. Kevin Tolly returns with the next column.

### HIPAA prompts storage pairings

**■ BY DENI CONNOR** 

SAN DIEGO — A slew of storage vendors are announcing partnerships related to compliance with the Health Insurance Portability and Accountability Act this week at the Healthcare Information and Management Systems show.

StorageTek announced two alliances. The first is with Stockwell, a healthcare consulting firm, to offer HIPAA Fast Path Gap Analysis, which lets organizations validate how they are meeting compliance for the April 14 privacy deadline. The second is with Rorke Data, a subsidiary of Bell Microproducts, to support the dominant picture archival communications systems, hospital information systems and radiology information systems with its disk and tape systems.

EMC announced a partnership with Rogers Medical Intelligence Systems to support EMC Centera, the company's content-addressable system that stores data such as medical images that don't change over time. Rogers also will use EMC's Clariion midrange storage.

Dell and Securesoft Systems announced an alliance to embed Securesoft's Immunity Security Management Suite into Dell's HIPAA Compliant Desktop, which is used in doctors' offices and healthcare institutions for entering and updating patient records.

Securesoft also will unveil HIPAA Remediation Technology Roadmap, which will show off its asset management, biometric access controls, integrated vulnerability analysis, automated patch installation, public-key infrastructure messaging, nonrepudiation and integrated privacy/security technologies.

Enacted by the U.S. Congress in 1996, HIPAA establishes national standards to ensure privacy in electronic healthcare transactions. ■

### VPI

continued from page 19

Internet service and using the Free S/WAN PCs to connect over encrypted IP Sec tunnels

In addition to using Linux to securely connect remote offices, users are putting Linux in as a firewall to keep out network intruders

Thompson Financial in Milwaukee recently installed Linux as a firewall at one online trading data center. Ten Linux boxes were configured as single-purpose firewalls and sit in front of a data center of IBM RS6000 Unix servers, which were set up as back-end electronic trading servers for eTrade's front-and Web site.

"We're using Linux as our security platform as a way to keep costs down," says Doug Moorhouse, a network administrator at the facility, who now oversees the network security.

The data center used Cisco PIX firewalls in the past and then moved to Unix server-based systems running Check Point software, which let Moorhouse customize the devices' configurations and software builds. When the organization's budget was tightened, he decided to switch to Linux and Intel servers, which were less expensive to deploy and maintain than the Sun and IBM RS6000 boxes he'd used previously.

Moorhouse used the firewall software that is built into the Linux kernel, which had all the packet filtering and security features he was looking for, he says. The



### **Tips and links**

Advice from users who have implemented Linux open source security infrastructures.

- Knowledge is power: Specifically, familiairty with the Linux operating system as well as kernel debugging.
- Make the TCO case: Get comparative pricing and quotes for security/VPN systems from vendors to show savings.
- Be ready to get dirty: Do-it-yourself means fix-it-yourself, so be prepared to handle bugs without a toll-free support number to call.

Linux links:

VPNs: www.freeswan.org
Firewalls: www.linux-firewalls-tools.com

### Radvision

continued from page 19

the U.K.

Doron and Radvision say video is the ultimate application for the 3G networks, but Richard Endersby, vice president of Internet access and edge infrastructure at Probe Research, says other factors besides video will drive 3G first.

"In theory, I think that video would/ should be a driving force, but I have reservations as to how well carriers will be able to deliver it to users given constraints of network coverage, data rates and cost, etc., in the near term," Endersby says. "Gaining, music downloads, richer messaging, location-based services, I think will be nearer-term drivers."

Currently, Radvision is targeting its new gateway at large corporations, cellular operators and traditional ISPs. The gateway, which is based on the same chassis as its IP-to-ISDN product, comes with SNMP and quality-of-service support as well as support for IP to 3G-324M dial plans that interprets the route from getting from the IP side to the cellular phone.

Pricing for the VialP GW-P20/M Gateway starts at \$46,900 for the gateway card and \$6,000 for the chassis to put the card in. Radvision customers with a VIP400 chassis can use the gateway card with their existing hardware.

Radvision: www.radvision.com

Red Hat Linux software he used came with setup tools that made it easy to install only the more essential software packages on the servers.

Moorhouse says support and management tools for the Linux firewalls aren't as polished as black-box firewall gear from makers such as Cisco or Nokia, he says. Having a working knowledge of Linux and its firewall features is enough to keep the devices running smoothly.

"We have some pretty important information being protected by those Linux boxes," Moorhouse says, adding that the performance of Linux firewalls has been good.

"All companies that are feeling the hurt from the recession have to find cheaper and better ways to operate," Moorhouse says. "Using Linux helps us do that."

# Tape Backup

# For users that have outgrown DDS, Sony AIT solutions offer a clear migration path.

If your company has had formal tape backup systems in place for a year or more, there's a good chance no one is giving them a lot of thought, beyond making sure that the regular backups are completed. But there are a variety of new business challenges and advances in data storage technologies that make this the right time to take a fresh look at your tape storage strategy.

Sony's Advanced Intelligent Tape (AIT) is a proven data storage format, now in its third generation, that many organizations are using to meet business challenges in a more consistent and practical way. Unlike legacy tape solutions such as Digital Data Storage (DDS), organizations can use AIT to create a tape storage strategy that adapts to changes in IT requirements while meeting future performance needs.

Organizations often implement tape storage in an ad-hoc fashion, adding tape backup units to PCs and servers as needed, purchasing different units (and even different formats) for individual, workgroup and data center needs. Users of DDS tape systems whose tapes lack the capacity, speed or level of automation to meet burgeoning demands typically need to implement different tape storage systems for different needs, creating the lack of a consistent, broad strategy. That situation relegates tape storage to a tactical (but still important) function, incapable of easily adapting to new business challenges. Those challenges include:

**Explosion of data** — A few years ago, most users considered only a handful of specialized documents or specific databases to be business-critical data. But that's all changed. E-mail files, Web site content, transaction data, multimedia files, sales materials and PowerPoint slides are among the business-critical data that most organizations want to archive and protect on a regular basis. In 2000, the research firm IDC projected that data storage requirements would grow an average of 87% annually.

Increasing storage costs — With traditional backup systems, more data means more tapes, and more tapes mean more money spent on media. Unfortunately, backup systems created 5 or 10 years ago simply aren't designed to handle the explosive growth of backup requirements we see today. Consequently, companies are caught on a tape treadmill, constantly purchasing additional tapes to handle increased volume.

Greater need for business continuity — While it's always been important to ensure that critical data can be recovered in the event of a problem, over the past few years, it's become critical to ensure that businesses can continue to function in the event of equipment problems or a disaster. For most companies the cost of downtime—even a few hours—can greatly exceed the expense of adequate protection.

**New government mandates** – A variety of organizations need to archive more data because of new govern-

ment mandates and industry standards that require increased protection of data, as well as the archiving and storage of a broader range of corporate or customer data. For example, health care organizations must meet requirements for the Health Insurance Portability and Accountability Act (HIPAA), while financial services companies are subject to more stringent Securities and Exchange Commission regulations for data storage.

**Faster backup/reduced administration** — Backup and restore processes take longer as the volume of business-critical data that needs to be archived grows, both on the desktop and in the data center. The number of tapes necessary to handle that data also increases, as does the

cally for a price equivalent to that of traditional DDS-4 systems, but with increased performance, capacity and reliability. And with AIT, your investment is protected. Indeed, since AIT was introduced in 1996, Sony has doubled capacity with each generation, culminating in today's super-drive class AIT-3.

AIT also has a number of other important benefits when compared to DDS tape systems, including:

**Better reliability** — Sony AIT systems are rated for 100% duty cycle (unlike DDS), so they are perfect for automated libraries and network-attached storage needs. In addition, AIT's helical scan recording and Advanced Metal Evaporated (AME) tape provide increased reliability, extended media life and reduced cleaning requirements compared with DDS systems.

**Smaller form factor** — AME media and helical scan recording provide the highest density of any data tape, enabling high-capacity AIT systems to fit in a 3.5-inch format

### **AIT Grows With You**

AIT easily handles today's, and tomorrow's, storage needs.

Sony AIT Drives and Autoloaders

Ideal for server and desktop backup, DDS replacement Sony StorStation™ AIT Libraries



Backup automation for local offices, enterprise departments Sony StorStation™ Backup Servers and File Servers



LAN-based backups, remote/distributed backups, data consolidation/sharing

administrative overhead. In many organizations, IT personnel spend far too much time managing inefficient tape strategies and not enough time working on tasks that add value to the business.

With such a wide range of new data storage challenges facing companies, it's no wonder that traditional tape storage systems have become almost more of a hindrance than a help. What's needed is a way to turn archival data storage from a time-consuming chore to a strategic advantage—one that can help increase business continuity, increase IT flexibility, decrease the time spent on routine maintenance tasks and proactively meet evolving business needs.

A variety of data storage advances over the past few years bring just such dramatic benefits, especially to organizations currently employing DDS formats. For example, Sony's AIT data storage systems are designed to cover everything from PC backup and workgroup-level requirements to automated data center needs. Instead of having multiple tape formats across these groups, Sony's AIT allows an organization to have a single tape format, providing a seamless migration strategy as backup volumes grow. Enterprises can upgrade to AIT gradually, replacing individual older systems as capacity needs dictate—typi-

Fewer tapes, more capacity — AIT cartridges can hold up to five times the uncompressed capacity of DDS-4, greatly reducing the number of tapes required for backups and thereby cutting the ever-growing cost of media.

**Greater speed** — With Sony's Memory In Cassette (MIC) flash memory chip, AIT cartridges provide much faster file access and recovery, reducing the amount of time it takes to recover lost data or downed systems and contributing to a strong business continuity plan.

**Lower cost** – AIT-1 drives cost less than DDS-4 drives, yet deliver increased capacity and speed.

As data volumes grow, perhaps you can make do with your current DDS tape systems by adding more tapes to the backup rotation, allocating more time for maintenance and restoration, and using a jumble of different tape formats for different needs. But in the long run, it makes more sense to reconsider your data storage needs and to find a solution that will provide continuity, consistency and compatibility throughout your entire organization. With proven new technologies such as Sony's AIT tape storage systems addressing today's most pressing business and backup requirements, you can turn your backup processes into a business benefit instead of an IT liability.

Learn More About

**Sony AIT Solutions** 

Download the free white paper, "Formulating A Tape Backup Strategic Plan," and learn more about Sony storage solutions. Visit www.nwfusion.com/sony/DDSNW.

### A Healthier Call Center

Cisco Customer Contact Solutions help health intelligence and solutions provider CorSolutions® integrate its four call centers into a virtual customer interaction network.

Living with a chronic disease means paying extra attention to your health and making sure you follow doctor's orders on everything from how to take medications to what to eat. But there will always be times when you're just not sure what to do about a particular symptom, whether it's serious enough to see your doctor or even requires a trip to the emergency room.

Participants in CorSolutions' disease management programs have another option: call a registered nurse who is educated to handle their specific condition. CorSolutions, a leading disease management company, provides customer-centric telephonic interventions to support individuals with chronic disease. Health plan providers and employers turn to CorSolutions to deliver information to individuals with one or more of over 30 chronic conditions — from asthma and diabetes to heart disease. The idea is to help participants manage their diseases, keeping them healthier and reducing the need for hospitalization and trips to the emergency room.

The company uses a combination of communication channels including educational mailings, interactive voice recognition, Web-based tools and telephone conversations to customize a health management plan for each patient. Providing the right help, at the right time and by the right method is critical to the program's success. "Some participants prefer reading, others may prefer using the Web-based education and tracking tools, while many others prefer direct telephonic communication," says R. Thomas Brady, CIO for CorSolutions, based in Buffalo Grove, Ill.

The telephone is crucial to the company, whether it's used to field calls coming in at all hours from participants or to conduct regularly scheduled outgoing calls. When CorSolutions needed to upgrade its telephony and contact center infrastructure, it opted for an IP Communications solution from Cisco Systems that includes Cisco IP Contact Center (IPCC) Enterprise Edition.

### On the road to IP

including independent evaluations,

customer success stories and a

financial justification white paper.

Visit:

www.nwfusion.com/gocv/adv6

or enter DocFinder 4322.

CorSolutions operates four call centers — at its Illinois headquarters and in Fort Lauderdale, Fla., Philadelphia and Phoenix.

As the company's business expanded, customers began requesting reports on such items as call frequency and call duration — reports that CorSolutions' TDM-based PBX and ACD system couldn't easily provide. Additionally, while

CorSolutions had similar call processing equipment in each of its locations, the system was not fully integrated, creating challenges in ensuring that callers were connected to the appropriate nurse in an efficient manner.

Talk on IP Communications" pack,

"We looked at trying to upgrade the system and found that it was prohibitively expensive for technology that we thought really wasn't going to be around a long time," Brady says.

CorSolutions decided that an IP-based solution was the way to go, and before long

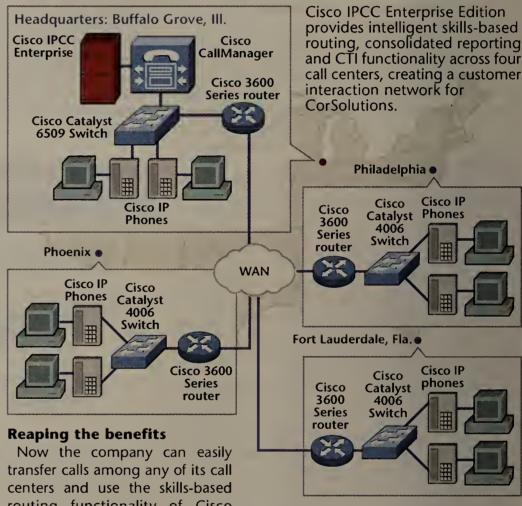
Cisco representatives were on site learning about CorSolutions' requirements — which included skills-based routing, consolidated reporting, integrated call processing and centralized management.

In the spring of 2002 the company installed a Cisco IP Telephony network that includes Cisco CallManager software. Cisco CallManager provides the central telephony intelligence that is shared across all remote sites and enables 4-digit dialing over the wide-area network to any CorSolutions location. Cisco Unity software provides voicemail to all of CorSolutions' users. Similarly, the three remote contact centers can tap in to Cisco IPCC Enterprise installed at headquarters — one of the keys in keeping the cost of CorSolutions' Cisco implementation far below that of proposed solutions from competing TDM-based vendors. Enabled by Cisco AVVID (Architecture for Voice, Video and Integrated Data), the IP Communications solution works seamlessly with the

underlying Cisco converged data and voice network. CorSolutions uses CiscoWorks 2000 software to manage the entire infrastructure and monitor the health of its IP Telephony network.

CorSolutions immediately realized cost benefits. For one, it was able to replace approximately 120 plain old telephone service (POTS) lines with ISDN primary rate interface (PRI) links, producing a savings of about 3% since deployment. The new inter-office calling capability likewise produced a small savings in real dollars. The largest savings, however, came from increased frame relay utilization. CorSolutions consolidated multiple T-1s into a 6 Mbps fractional ATM port, reducing frame relay costs by more than 50% monthly.

### **IP Enables a Customer Interaction Network**



routing functionality of Cisco IPCC Enterprise to find the most appropriate agent, improving employee productivity and enhancing customer satisfaction.

CorSolutions is also using Cisco 7940 and 7960 IP Phones, which has resulted in additional savings for the company related to moves, adds and changes, and further simplifies the task of transferring and conferencing calls.

The reporting capabilities of Cisco IPCC Enterprise are another plus for CorSolutions. Brady can use Cisco WebView software to get a global view of contact center operations in both real time and historical form.

CorSolutions will soon derive even more value out of its contact center implementation by integrating Cisco IPCC Enterprise to CorConnect<sup>SM</sup>, a Web-based clinical care system. This integration will enable soft dialing from customer records, which will reduce manual dialing errors. It will also drive screen pops of client data to nurses' PCs as they make or receive calls, leading to more productive and personalized interactions.

"CorSolutions is very pleased with the Cisco technology," Brady says. "It has helped the company increase our operational efficiency and improved the effectiveness of our service delivery. Using this technology assists us with what we do best, helping individuals improve their health through education and support in the management of chronic diseases."

This is the sixth of a six-part advertising series on Cisco IP Communications solutions. Look online for the first five parts in the series: www.nwfusion.com/gocv/vadv6

# Enterprise PORTALS M MESSAGING/GROUPWARE E-COMMERCE M SECURITY NETWORK MANAGEMENT M DIRECTORIES

# Wanted: Blade server mgmt. software

With the devices proliferating, corporate users need ways to manage the hardware.

### **BY DENISE DUBIE**

As users scramble to scrimp and save by putting applications on low-cost blade servers, they are increasingly looking for more sophisticated ways to manage, provision and automate these new environments.

Blade servers — high-density, low-power blade computers — have emerged in the past two years as a less-expensive and space-saving option for corporate users looking to build scalable and redundant data centers. Server blades come in the

form of single boards one-eighth the size of a typical 1U server and consume up to 12 times less power.

The use of these low-cost devices — prices can start at \$1,000 — is skyrocketing. The Yankee Group reports enterprise and telecom users worldwide spent \$95 million on blades in 2002, and the market research firm expects to see the market grow to \$3.78 billion by 2006. The growing market for blade servers is driving hardware and software vendors to deliver blade management products.

"Now, it's the Wild West in terms of managing blades," says Jamie Gruener, a senior analyst at The Yankee Group. "The server vendors themselves are offering provisioning tools, and the systems management vendors are putting out server management modules."

For now, many users opt to manage servers with homegrown tools. Take Ramaswamy Aditya. He says the blade servers he bought from RLX Technologies are easier to manage than the 1U servers also running in his data center.

"All in all the management of the blade servers is far easier than traditional rackmount servers, the density is greater and the power consumption much lower," Aditya says.

The CTO at Web application hosting company Zapatec in Berkeley, Calif., uses a combination of remote protocol monitoring for applications, such as syslog and SNMP, to gauge blade performance. Aditya also uses an open source operating system called FreeBSD and Linux on the blade servers to perform out-of-band management.

Along with Aditya, Carl Alexander, senior systems and network administrator at TERC, a nonprofit education research and development organization in Cambridge, Mass., says he manages blade servers via the serial console with a "home-brewed secure console server." And he says the system is flexible and scalable, with no need for software instrumentation.

"This system involved hardware costs of less than \$50 per host, zero software costs and certainly no more systems administration time than configuring a commercial server management solution," he says.

### **Blade** management basics

Managing blades shouldn't vary much from managing typical servers.

Corporate users want to monitor avail-

ability and performance, as well as spot potential hardware problems before they cause downtime. Because blades are hotswappable they can be a potential management problem. Corporate users must be able to quickly discover new blades, identify the proper configuration and allocate the necessary images to the blades.

Because blades also serve as inexpensive options for branch offices or sit on the

edge of the network, network executives must be able to administer blades remotely, which requires certain asset or desktop management capabilities. And while many software vendors such as Computer Associates and BMC Software have tools to manage systems and servers, there are no standards to manage blades.

"Vendors have completely different ideas

See Blades, page 24

### Takes

■ Netegrity's new software application is intended to make it easier for organizations to securely exchange user-identity and sign-on information using Security Assertion Markup Language. The Netegrity SAML Affiliate Agent, announced last week, is designed to run on servers that support business-to-business and business-to-customer sites, and corporate intranets. The lightweight application will make it easier for companies to share user and sign-on information between their Web sites regardless of the technology infrastructure being used on each side of a transaction. SAML is an XML standard for exchanging logon information between distinct Web sites, for example as part of business-to-business or businessto-consumer transactions. With the new agent, partner sites that are not using SiteMinder will more easily be able to recognize and authenticate that SAML identity from sites that are, Netegrity said. **Oblix** also said last week that it had integrated the SAML standard in its just-released NetPoint Version 6.1. That product will let companies using NetPoint exchange SAML assertions with security systems at other partner sites, providing a single sign-on to resources on those sites.

www.netegrity.com; www.oblix.com

# **Cyber-Ark bolsters its data protection tool**

### BY ELLEN MESSMER

DEDHAM, MASS. — Cyber-Ark has expanded its secure data storage package to help users more easily exchange encrypted data between their customers and business partners across the Internet.

Inter-Business Vault is Windows-based server software that automatically encrypts all stored files. It is usually placed between firewalls at the access point to the Internet so that encrypted files can be accessed via a custom-built Windows or Web client. The software is touted as an alternative to VPNs, promising better performance and easier administration.

In the second version, Cyber-Ark offers the option of having a business partner install internal-LAN gateway software as an alternative to using the Vault desktop client software. The gateways, sold separately for either HTTP, FTP or Microsoft's Common Internet File System (CIFS) protocol, allow for faster file transfer than existing client software does by using server-to-server data compression and caching.

Some corporations already using Cyber-Ark Vault with the desktop client access say they will switch to the gateways because it will allow more speedy transfer of data to business partners.

"We have used Inter-Business Vault internally to provide secure means of transferring highly confidential files," says Tom King, chief information security officer at Lehman Brothers, where the use of Vault is often combined with the RSA Security SecurlD dynamic passwords for two-factor authentication. "Vault is firewalled so it

# PROFILE: CYBER-ARK SOFTWARE Location: Dedham, Mass. Founded: 1999 Founders: Alon Cohen, Udi Mokady Primary product: Inter-Business Vault, software for controlling access to server data. Financing: \$20 million from Jerusalem Venture Partners, Vertex, JP Morgan Chase, Nomura International, IDB Development and others. Employees: 45 Fun fact: Cohen, formerly with the Israeli Army's system and security department, got particularly interested in data-storage, security after a personal s-mail to a girlfriend found its way into the hands of Army tropos

will only talk to the Vault client software. We will definitely move to the new version of the product, with the [CIFS] gateway, so we can extend its utility out to external firms and in some of our branch offices."

Vault is priced starting at \$30,000 but can go as high as \$100,000. The HTTP and FTP gateways for the Vault are available now; the CIFS gateway, which will let users access Vaulted information as if it were just another drive in Windows Explorer, will be available by the end of this quarter. Each gateway costs \$5,000.

Cyber-Ark: www.cyber-ark.com



2/17/03

effort for Intuit to do a better job of messing up its public image than it did when introducing an activation requirement for the Windows version of TurboTax.

From the point of deciding to require such a feature and then every step of the way, the company seemed to pick the path that would maximize user suspicions and the damage to Intuit's image and product sales. It's almost like whoever at Intuit made these decisions was a mole in the secret pay of H&R Block, which sells TaxCut, the main competitor to TurboTax.

### Mission accomplished?

In the early days of PCs, many software companies tried various forms of copy protection to "protect their [intellectual property rights]," an Intuit spokesman says. The schemes caused widespread user revolt and within a few years almost all of the schemes had been discarded in favor of unprotected versions. Intuit seems to have studied everything that the customers found to be wrong with the old protection techniques and carefully recreated them in TurboTax.

System backups are hard if not Impossible; recovery from a disk replacement is problematic; moving the software to a different machine is blocked; and there is no assurance that you will be able to use the software in five years. Then Intuit added a few other touches: the company did not make it clear to users what was happening; it used third-party software that was widely thought to be spyware; and, the company

set it up so that the third-party software would run in the user's machine forever, even if TurboTax was uninstalled. Good job indeed if you worked for H&R Block, but not so good if your loyalty was to Intuit.

But just what problem was Intuit trying to solve? Remember that this is inexpensive software (starting at \$19.95) with a built-in requirement to purchase new software each year forced by the U.S. Congress changing tax laws. Was there so much piracy of the \$19.95 version that it was worth making life significantly harder for users? I would expect that most of the piracy that did exist was not by individuals who gave copies of the CD to their officemates, but rather by professional software pirates. So making usage harder for the average user is the equivalent of punishing New York City because of a few crooks. Maybe Intuit thinks this is a reasonable balance. I would predict that if the company keeps thinking this way, H&R Block will be the beneficiary and Intuit will have less to worry about because it will be selling less software.

Software piracy is a real problem, but it should be addressed where the real threat is and that is generally not with individuals buying inexpensive software. I expect that there are things which can be done technically to help here, but let's aim at the high-value targets and not penalize everyone. That is, unless you secretly work for the competition.

Disclaimer: Intuit treating all of its customers like potential crooks might increase demand at the Harvard Law School, but the school did not express an opinion on the value of moles. The above observation is my own.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

### **Blades**

continued from page 23

on how to manage blades, and a lot of the offerings are very proprietary," Gruener says. Proprietary systems represent a challenge in managing across heterogeneous networks, but at this time, blades tend to work only with blades and chassis from the same vendor.

Management products for blades falls into one of four categories: change and configuration management; image cloning and management; provisioning; and policy-based management efforts. And each vendor seems to have its own method to manage blades. Yet, policy-based management, in which systems can automatically deploy predefined actions for configuration, security, provisioning and performance across servers and other networks elements — remains the ultimate goal for vendors and users.

### Hardware heavyweights

One crucial difference between blades and traditional servers is volume — because of their space-saving character, there can be more blades in a smaller space for corporate users to manage.

That's where automation can help, experts say IBM and HP have begun their policy-based management under the guise of their autonomic computing and utility computing product road maps, respectively. The idea is that an intelligent infrastructure coupled with smart software will be able to reallocate storage, processing and network resources on the fly.

In terms of blade servers, IBM, through its eServer BladeCenter line, provides IBM Director management software free with its eServer blades. IBM Director includes client software that acts as agents running on the blades that deliver management information back to the server, which is a snap-in module on the back of the blade chassis The software can perform autodis-

### **Blade runners**

While server blades take up less space and are easy to replace, managing them can pose some challenges.

**Proprietary software:** Management packages are mostly proprietary, limiting customers to buying management tools from their blade vendor.

**Cabling cons:** With blade servers, serial consoles are not consolidated as they are with typical Ethernet cables, preventing users in some cases from getting a consolidated view of all their server blades.

**Cost-efficient tools:** Products to manage blades can be pricey for enterprise users with only a few blade servers. Freeware and shareware may be a better option.

**Storage concerns:** Server blades lack storage space. Enterprise users might have to connect blades to external servers to store important data, adding to the complexity of the blade environment.

**Chassis age and type:** Newer server-blade versions can outdate a chassis before its time. For example, a 1U chassis cannot accept newer blades that require two slots rather than one.

Home field advantage

A recent Yankee Group study showed about

40%

of current blade server users wrote custom scripts to provision server blades rather than buying vendor software to handle the task.

will serve as a management portal for servers, storage systems, switches and software in the network. Sun will ship Control first on a new set of blade servers due in

the first quarter.

And Veritas, which at year-end announced it would be acquiring server provisioning software vendor Jareva Technologies and application performance management software maker Precise Software, also might enter the policy-based server management market, Gruener says. He adds that Dell will most likely partner to add management capabilities to its blade server offerings.

### Software start-ups

Companies offering strictly automation software to manage blades include start-ups

such as BladeLogic, Opsware (formerly Loudcloud), CenterRun and Think-Dynamics, among others.

These start-ups emerged along with blades in the past two years and work to automate the process of provisioning servers in data centers. The companies all provide software that automates many configuration processes that normally are handled manually, such as the application of patches or the collection of inventory information. One advantage of these start-ups is that their software can work with blade servers and traditional IU servers from a variety of vendors.

"Products like BladeLogic are significant because of their cross-platform characteristics." CIO Ron Rose says. "Today's data centers are very problematic from an administration perspective, so tools that actually help unify the operations of these heterogeneous environments are the wave of the future."

Senior Editor Deni Connor contributed to this story.

covery on blades and quickly reprovision one when a swap is made.

IBM pairs its hardware and software by adding LightPath Diagnostics to the blades and chassis. A specifically colored LED can lead a network operator more quickly to the chassis and then server blade that might be having performance problems or a failure, IBM says.

Meanwhile, HP, which claims it shipped about 15,000 blades in 2002, manages blades with Insight Manager 7, a package it picked up in its November 2002 acquisition of Compaq. Insight Manager 7 software includes rapid deployment features. HP also partners with desktop and asset management vendor Altiris to provide remote management capabilities to the blade and other servers.

RLX Technologies reports shipping 6,000 to 8,000 in 2002, while IBM says it has shipped 5,000 blade servers in the past 10 weeks.

RLX also sells its Control Tower 4 man-

agement software with its hardware. The software helps corporate users deploy and manage server blade rollouts. The company says its combination of software provisioning tools and the ultradense RLX server blades reduces IT labor, and it can manage across Windows 2000 and Linux operating systems. Control Tower 4 also gives users a Web-based interface from which to view blade server health.

With its NI initiative, Sun now also might be entering the management software fray. The company, which just this month announced its first blade (see www.nwfusion.com, DocFinder: 4334), in November 2002 purchased Terraspring, a start-up that makes software that automates deployment, management, visibility and control of heterogeneous data center environments.

Sun recently announced it would rework the Terraspring software to form what it calls the NI Control Plane, which



### Speed and Security—On the Go!

"We have been able to reduce our credit card authorizations to an average of five second or less," says Marty Maglio, director of IT Architecture for Wawa Food Markets—a convenience store chain with more than 550 locations throughout the mid-Atlantic region. "This has improved our customer service while cutting our communication costs in half!"

The Bottom Line: New WAN solution improves customer service, saves money

Find out more at enterasys.com/nw/wawa2.

# #ENTERASYS

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Vol.1, No.2

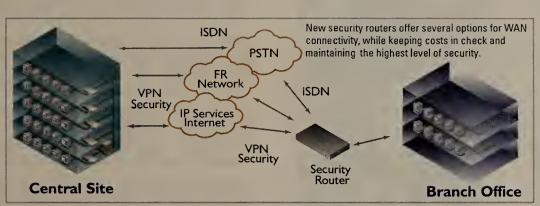
# High-Performance, "Security Tough" Branch Routers

If you've been fortunate enough to vacation on a tropical island, you know the pleasure of getting away from it all. Unfortunately, if you own an island home, you also know the stress of maintaining this corner of paradise. It's impractical to fly back and forth every weekend to check on your property, so you're consumed by thoughts of burglary, fire, flood. Interestingly, these problems are similar to those faced by a CIO struggling to manage remote office networks.

Like a beach-front cottage, your branch offices may become inaccessible due to natural or man-made disasters. IT systems may become compromised by malicious hacker attacks, disgruntled employees or Internet-born viruses. WAN links may fail, or a local utility may dig up their lines and inadvertently cut through your T-1 cable.

To compound the problem, nobody at the branch office can tell the difference between Ethernet and Inkjet-so if something does go wrong they are not likely to diagnose a Denial of Service attack or router configuration error.

There are steps you can take to protect the remote office network. The most obvious and the most often overlooked is disaster



assessment. Determine the nature and extent of risks, and develop contingencies to address these risks. Other good housekeeping tasks include always having Service Level Agreements for your WAN connections, using distributed firewalling, deploying VPN backup services and setting up automated offsite data backup.

### **Security Routers to the Rescue**

To help you meet the challenge, there are new security routers. These devices provide connectivity over a wide range of WAN circuits-including Frame Relay, T-1 and xDSL—as well as cost-effective and rapidly deployed VPN tunnels. A security router also includes firewalling to protect remote office

networks from attack, and Intrusion Detection capabilities so you know when an attack has taken place. And unlike the prior generation of routers that simply added security features on top of an enormous router code base, today's security routers are built "security tough" from the ground up.

### Start with a Plan

Of course the convergence of security and networking at branch offices requires more than just plugging in a new device. You must have a defined network security policy.

Security systems, applications and services are the common constituents of just about every security strategy. But how does it all come together? For more information, go to enterasys.com/nw/branch2.

### **Enterasys Branch Router: 7 Times the Throughput of Cisco**





The Tolly Group recently measured the performance of the Enterasys XSR-1805 and XSR-1850 security routers, and compared the results to the performance of Cisco Systems 1700 series and 2600 series branch office routers in identical configurations. Measuring routing, VPN throughput, Access Control List (ACL) capabilities and Quality of Service(QoS), the XSR routers outperformed their Cisco equivalents in every category

### Important highlights included:

• VPN Throughput—XSR-1805 forwards seven times more zero-loss throughput than the Cisco 2651XM in an IPSec tunnel configuration at 100 Mbps with 1,420byte packets

- Layer 3 Throughput—XSR-1850 processes three times the zero-loss Layer 3 throughput of the Cisco 2651XM at 100 Mbps for 512-byte packets and larger
- 100 Mbps with QoS—XSR-1850 provides more than triple the throughput of the Cisco 2651XM when forwarding 1,518-byte packets at 100 Mbps with QoS enabled

The results of the study led Kevin Tolly, president of The Tolly Group to conclude, "Typically, we see vendors test performance with ancillary functions like ACL and QoS processing turned off, but Enterasys tested its routers with full-device functionality enabled, meaning users get a truer picture of overall device performance."

Full details and test results are available at http://www.enterasys.com/performance or http://www.tolly.com.

Why high throughput when connecting across WAN links at speeds of only a few megabits? This is analogous to why we buy cars with top-rated speeds of 160 MPH, when the speed limit in most places is 65 MPH. A high-performance security router needs the horsepower to easily handle the demands of real-world network configurations-configurations with VPN, ACLs and QoS enabled—to protect your corporate intelligence and optimize your resources.

For example, when every remote employee decides to live stream the CEO's quarter-end earnings broadcast, you know that the XSR router is up to the task. Without a highperformance security router, all bets are off.

Enterasys' XSR security routers were explicitly designed to deliver best-in-class price performance. For more information go to enterasys.com/nw/tolly2.

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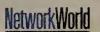
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# THE INTERNET EXTRANETS INTEREXCHANGE AND LOCAL CARRIERS WIRELESS REGULATORY AFFAIRS

■ BellSouth recently rolled out a Gigabit Ethernet service for wholesale customers, letting companies connect multiple offices in BellSouth territory with high-speed connections. Called Native Mode LAN **Interconnection Gigabit Ether**net Service, the offering supports data, video and multicast. The service is available at speeds of 1,000M bit/ sec, 100M bit/sec and 10M bit/sec. The service is available immediately. www.bellsouth.com

■ Verizon Wireless and Citrix **Systems** recently revealed an agreement designed to enhance mobile applications in vertical markets, such as government, telecom, education, financial services, healthcare and manufacturing. Citrix and Verizon jointly will market services using Citrix's MetaFrame software, which enhances wireless application performance, and Verizon Wireless's Express Network. The Citrix software eliminates the need to download entire applications over a wireless network. Only keystrokes, mouse clicks and screen updates are transferred between the user's wireless device and the server, consuming as little as 10K bit/sec.

■ Global roaming ISP iPass last week expanded the reach of its Wi-Fi wireless LAN service network through an agreement with WiFi provider StayOnline. IPass users now can connect to the Internet via 850 802.11b Wi-Fi access points on Stay-Online's network. StayOnline has agreements with 18 hotel chains, including Crowne Plaza, Embassy Suites, Hilton and Sheraton. The company has deployed access points that let travelers connect to the Internet and corporate networks at up 11M bit/sec. IPass has deployed 500 access points around the world on its network. Through partnerships such as the one with StayOnline, iPass global roaming users can connect to the Internet through about 4,000 access points. www.ipass.com; www.stayonline.net

# **Qwest looks for turnaround**

Emphasis to be on better customer service, VoIP.

### **BY MICHAEL MARTIN**

In the wake of a CEO resignation, federal investigation and financial restatements, Qwest says it's looking to turn over a new leaf this year by improving customer service, unifying its Layer 2 and Layer 3 WAN offerings and getting serious about voice over IP.

While there have been signs of improvement, the carrier still has questions to answer, according to industry observers.

"The investment banks are a little more optimistic about Qwest and the stock rating has gone up," says Lisa Pierce, an analyst with Giga Information Group. "But what's important is that we still don't know what Qwest plans to concentrate on. What lines of business and what kinds of services will be the focus?"

An issue Qwest officials won't have to

### **Cutting back**

No RBOC cut capital expenditures last year as drastically as Qwest. Capital expenditures (in billions)



focus on quite as intensely is the company's financial situation. Last fall, with the carrier teetering on bankruptcy, Qwest sold its directory business QwestDex for \$7 billion, buying the company time to get its finances in order.

"I know the world thought we were going to go bankrupt last summer," says Teresa Taylor, executive vice president of Qwest product management and pricing. "One of our biggest issues with business customers is to convince them that we're still here and we're not going anywhere."

Another ray of light for Qwest is its effort to win long-distance approval in 14 Western states. After several delays, Qwest finally won regulatory approval in nine states in December.

However, Qwest still is carrying more than \$22 billion in debt and reported a net loss of \$214 million in its quarter ending Sept. 30.

One tactic Qwest has used to try to create stability is cost-cutting. The company reduced its workforce by about 9,000 last year. It also sliced its capital expenditures by more than 60% from 2001 (see chart).

Qwest's financial problems were a source of concern for John Brademeyer, IT manager for SEI Information Technology, a help desk firm in Fargo, N.D. SEI uses Qwest for local phone service in its two North Dakota offices and an office in Indiana. SEI also uses Qwest for Internet access in all three offices and for professional services.

"The thing I keep in mind is they have a cash cow in their local phone service operation," Brademeyer says. And, he says, Qwest still is in better financial shape than WorldCom, the company Brademeyer uses to provide Internet redundancy for his two North Dakota offices.

Despite the cost-cutting, Taylor says Qwest still is striving to improve customer

"When US West and Qwest merged we were more focused on the technology and didn't spend as much time looking at how we served customers," she says. "Last year we made a lot of back-office investment to improve billing, provisioning and service."

Pierce says it will take time for Owest to iron out its customer service problems.

Qwest's original focus under former CEO Joe Nacchio was IP. When Nacchio realized Qwest couldn't survive on IP alone, the carrier began offering traditional services such as frame relay, but Qwest didn't support those services well, Pierce says.

"A few of those problems will set you back a long time once word gets out,"

See Owest, page 28

### **SLAs drive IP VPN selection**

Videoconferencing provider goes with C&W offering.

### **■ BY DENISE PAPPALARDO**

IP videoconferencing service provider WireOne is looking to improve the reliability of its offering by migrating its network to Cable & Wireless' IP VPN QoS.

WireOne originally outsourced its network to Exodus, but concerns about network performance caused it to pull out of that service provider's data centers after Exodus filed for bankruptcy, says Mike Brandofino, CTO and executive vice president at WireOne.

"We migrated to our own network infrastructure so we could control performance," he says. "But we're not a network company; we're a video services company."

WireOne does not want to manage its own network, but says it didn't have a choice because carriers were not offering quality-of-service guarantees that were up to par. WireOne offers a managed point-topoint videoconference service called Glowpoint to businesses worldwide.

The videoconference service provider has migrated five of its 13 collocation facilities to C&W's managed IP VPN QoS service because the carrier is guaranteeing minimal levels of jitter, packet loss and delay, Brandofino says.

The five sites that are connected to C&W's

VPN service are in Tokyo; London; Denver; Segundo, Calif.; and Weehawken, N.J.

While many service providers guarantee minimal levels of packet loss and delay, far fewer include a metric for jitter with a standard service-level agreement. "Jitter directly affects the quality of a video call and there's no fixing it once it happens," Brandofino says. To offer a high-quality service, it is essential to keep jitter low, he says.

C&W's standard SLA guarantees jitter will not exceed 15 millisecond. The carrier's minimal packet loss and latency metrics vary greatly depending on class of service and geographic regions.

WireOne plans to migrate additional sites to the VPN service, but it's currently riding out contracts it has with other service providers for dedicated T-3 lines from when it built its own network.

C&W also plans to resell WireOne's Glowpoint services to its customers. ■



### More online!

Read a white paper from WireOne about how Glowpoint works.

DocFinder: 4335

EYE ON THE CARRIERS Johna Till Johnson



### Blame the Sprint board, not Esrey and LeMay

ou might remember my column a few months back excoriating the handful of unethical individuals at the helm of WorldCom for tarnishing the reputations of the many talented, hard-

working and honest folks in their ranks.

Now it looks as though Sprint employees are living the same nightmare. Sprint CEO William Esrey and President Ronald LeMay are being asked to step down amidst charges they used questionable tax shelters to protect their personal incomes, according to published reports.

Déjà vu? Not quite. Although it seems superficially similar, Sprint's case is nothing like what happened at WorldCom.

A year ago I almost went on record predicting that Sprint's management never would be guilty of unethical behavior. Now I wish I had, and not because I enjoy looking foolish in public or that I'm 100% certain that neither man made a mistake. Why? It's not Sprint's management that's primarily at fault here. It's the company's board of directors that's at fault.

Here's what reportedly happened. Consulting organizations such as Ernst & Young and KPMG charged Sprint and the executives millions of dollars for tax advice, which turned out to be questionable in the eyes of the IRS. Years ago, Sprint's board signed off on the use of these consultants, both for corporate auditing and for Esrey's and LeMay's private use.

But here's the kicker: Sprint's board did more than sign off. It required Esrey and LeMay to use these consulting firms for their personal finances, according to published reports.

Are you with me? The board reportedly set up the whole thing, forced management to go along — and then fired them as scapegoats.

If the published reports are accurate, there's only one word for behavior like

this: craven. Corporate boards are supposed to provide dispassionate oversight and guidance. They're not supposed to essentially force their own management teams to break rules, then toss the managers overboard when they do.

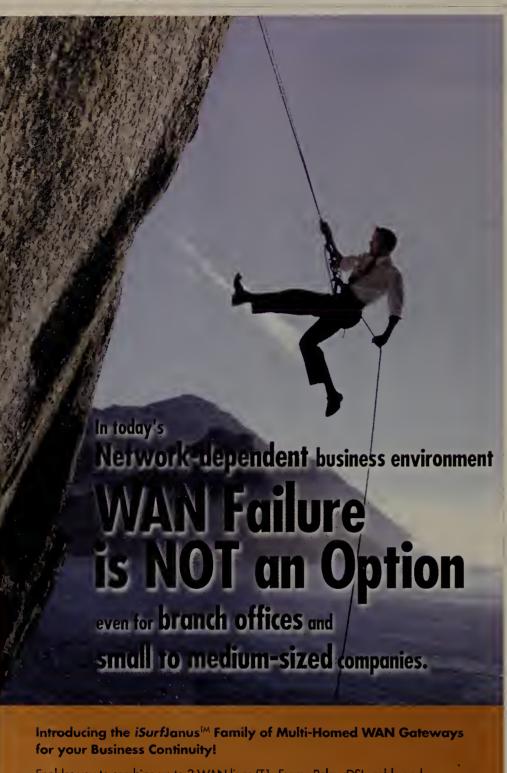
Sure, Esrey and LeMay might not be blameless. But the worst thing you can say about them is that they considered the facts, alerted the higher-ups, and ended up making the wrong judgment call. The higher-ups, on the other hand, completely botched their handling of the event. I think responsibility accrues to authority. The higher you are in the food chain, the more responsible you are — and the board is at the very top.

For Sprint employees, shareholders and customers, this all might appear somewhat moot. However, the net effect of this corporate turmoil is plummeting stock prices and perhaps lowered customer service — regardless of who's at fault.

But the truth matters. Sprint shareholders and employees should hold the board accountable for its boneheaded decisions. These people are clearly buffoons who can't, and shouldn't, be trusted at the helm of a large corporation. Write to them and say so.

It's not going to happen, but I'd like to see the board provide a formal apology to Esrey and LeMay — and to Sprint's employees and shareholders, too, while they're at it.

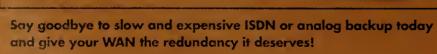
Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.



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### **Owest**

continued from page 27

she says.

Qwest's main business services focus this year will be merging the company's various WAN offerings, Taylor says.

"We're taking our frame, ATM, VPN and dedicated Internet access networks and pulling them together technically and from a service perspective," she says.

Qwest this year hopes to take the first steps along that path by getting Layer 2 and Layer 3 services to talk to one another, so a customer could have a multilocation network with both frame and IP VPN users communicating with each another.

"Some day we'd like to have all that traffic flowing over one backbone, but we're not there yet," Taylor says.

A unified backbone, which could be based on Multi-protocol Label Switching, or another technology, is probably still at least two years away, she says.

Owest's other big technology initiative this year will be moving forward on VoIP. Qwest already sets up customized private VoIP networks for business customers and offers integrated voice/data T-1 access for smaller clients. But the company is looking for other ways to use VolP in its network.

"There are endless opportunities there," Taylor says. "It could be a big cost reduction for us as we begin to change out parts of our network."

Taylor says that once Qwest completes its five remaining long-distance approvals, the company could have a leg up on the other three regional Bell operating companies because it already has 25 out-of-region metropolitan networks in addition to its long-haul network.

However, Pierce notes that Qwest's national network doesn't come close to comparing with those of the pure interexchange carriers. "One of Qwest's weaknesses is you need a widely deployed national network if you want to go against Sprint, WorldCom and AT&T," she says. "Outside its home territory, Qwest doesn't hit as many cities as the others."

Ultimately, Qwest will have to compete in the enterprise market by being aggressive on pricing, Pierce says.

"They don't have to give stuff away," she says. "But because they have to get their foot back in the door in many cases, because of the financial situation and the government investigations, they will have to be price-competitive."

# COMPANY PROFILES



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# COMPANY PROFILES



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# FOR TYING TELEWORKERS TO THE ENTERPRISE

# Telework in corporate America

Wonder what the other guys are doing? Take a peek inside 10 firms' remote work programs.

### ■ BY TONI KISTNER AND JEFF ZBAR

How does telework play in your company? Is working away from the office widely embraced, tolerated or frowned upon? The bigger question: Is telework saving your firm any money — in facilities costs, increased productivity, or in employee recruitment, retention and training? To find out, we interviewed executives at more than a dozen companies about their programs. The results were

Today's telework takes many forms. There are formal programs dictated by corporate management to cut costs; grass-roots programs created to meet employee needs or demands; and occasional or informal telework — employees work at home afterhours, on a snow day, or when a manager says it's OK. Most firms with teleworkers also have full-time remote (or virtual) employees, often living in another state.

Schering-Plough, with 30,000 worldwide employees, has a program in its clinical research division. Forty percent of its 500 staffers telework formally two or three days per week or work remotely. The company doesn't account for occasional teleworkers. "I have no idea how many there are, but I'd imagine the numbers are quite high," says project manager Gail Smith.

A new survey debunks a commonly held belief: The University of Maryland's Robert H. Smith School of Business found U.S. workers with Internet access at home and at work spend more time at home surfing the Web for work than they do surfing the The school's 2002 National Technology Readiness Survey found workers spend 5.9 hours per week at home online for work, and only 3.7 hours at work online for personal business. Conducted last December, the phone survey was based on results from 501 respondents. www.rhsmith.umd.edu/ pr/news-ntrs2002.htm

Similarly, HP, which has offered telework and other flexible work arrangements since 1990, says it doesn't "centrally track the use of work/life options." However, it estimates that between 10% and 50% of its workforce teleworks one day per week or on an ad hoc basis.

While there's nothing wrong with not tracking informal telework, it might prevent companies from optimizing cost savings.

Telework newcomer NASCO, an Atlanta national account services company, launched a small program in October 2002 with 60 project managers working one day per week from home. While NASCO lauds the increased productivity and employee morale, it doesn't expect to save money.

"We did a cost-benefits analysis, looking at everything from the cost of computer equipment to coffee, lighting, cubicles, you name it," says Mira Moss, NASCO's vice president of human resources. "Once employees are working three days a week at home, we could recoup some office space. But it's one thing to say you can get rid of these cubes, another to look at the business that's contracted for. We have a 10-year lease. So even if we got rid of them, we're still going to pay. With telework, the only thing we're saving on is the occasional cup

Schering-Plough saves on office space but receives no direct cost savings, because the company owns its facility. But telework will keep the firm from having to lease additional space as it grows, Smith says.

Across the gulf, AT&T, IBM, Morgan Stanley, Sun and others are realizing huge facilities cost savings from telework. While most won't share specifics, Sun says it saves \$150 million per year. Industry sources say KPMG saves \$66 million and Ernst and Young well over \$100 million.

AT&T's program is one of the oldest, largest and most successful. Last year, it began a big push to "virtual officing," sending 400 middle managers home for good, as a way to reduce costs, increase output, and improve job and career satisfaction, says Joe Roitz, AT&T's telework director. To ease the process, the firm added a virtual office piece to its intranet, so workers and managers could handle the process themselves. Rather than set up a free-standing virtual office portal, AT&T links workers to the relevant departments such as IT, facilities and purchasing, to get set up.

"We're creating a business benefit and

### **Telework snapshot**

A down economy isn't keeping firms from promoting telework. The savvy ones are using it to cut costs and gain a competitive edge.

Company	Employees	What's new
AT&T	25,000 teleworkers; 5,000 remote workers	Firm is moving hundreds of teleworkers into virtual offices as a way of reducing costs and increasing output.
Baxter BioScience clinical research department	35 teleworkers, 12 remote workers	Number has increased 25% in December 2002, when firm moved corporate office.
Cigna	3,100 teleworkers	Added 1,100 new teleworkers in 2001. Plans to increase the number to 5,000 by year-end; goal is 15% annually.
Eli Lilly and Gompany	90 formal teleworkers, 14,000 informal	Number has increased 30% from last year:
HP	10% to 50% telework	No changes; mature program.
LexisNexis	2,600 teleworkers	Program continues to grow, but more slowly than its inception eight years ago.
Lockheed Martin IT	About 350 teleworkers	Firm's attitude. LMIT found telework can be managed and increase productivity — in the right setting.
NASCO	About 60 teleworkers, 40 remote workers	The program, which was launched in October 2002.
Nortel	13,000 teleworkers	Number has decreased only 7% between 2000 and 2001, despite massive employee layoffs.
Schering-Plough clinical research division	130 teleworkers, 70 remote workers	Added 25 teleworkers in 2002. Instituted a waiting list.

structuring the enterprise for the knowledge economy, which means arranging it around networks, not buildings," Roitz says.

Cigna, which employs 38,000 people, saves \$3,000 per year per employee in office space, and reports a 30% decrease in turnover and 15% increase in productivity among teleworkers. Such numbers are driving the health insurance company to increase its teleworkers by 15% annually.

Nortel and Merrill Lynch continue to promote telework, despite grim downsizing. Nortel says it's laid off only 7% of its 13,000 teleworkers between 2000 and 2001, compared with the tens of thousands of employees fired in the same period.

Baxter BioScience and Lockheed Martin Information Technology (LMIT) — and NASCO — each reported management resistance to telework. Baxter, which has no formal program, increased its number of teleworkers by 25% in December 2002, when the company relocated several hundred employees to a new facility 30 miles away, increasing the commute for many.

"At the time, our [HR] department was supportive. But now I hear they're trying to restrict the number of people teleworking,"

says Dominique Endicott, senior manager of clinical data management. "For now, managers are implementing telework into our groups until we're told to stop,"she says.

In contrast, LMIT met management resistance by creating a structured program. The firm, which provides IT consulting for the military, was urged by employees to institute a telework program in 1997.

"We faced traditional thoughts about how employees wouldn't be as effective [out of the office]" says Joe Wagovich, director of communications. In response, LMIT implemented stringent policies on eligibility, as well as guidelines for how often teleworkers would check e-mail and call the main office for messages. Although most LMIT consultants' jobs aren't suited to telework, the company supports those that are with equipment such as notebook PCs and cable modems.

"We know there needs to be a balance between home and work life. "It took us a while to understand the culture, to learn telework can be managed and increase productivity — in the right setting," he says. "People have come over and said, yeah, telecommuting isn't so bad."

# Extended Enterprise Issue COMPANY PROFILES



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# **TECHNOLOGIES AND STANDARDS** SHAPING YOUR NETWORK

# **IFCP** melds Fibre Channel and IP

#### BY PRASAD PAMMIDIMUKKALA

Internet Fibre Channel Protocol is a standard for running Fibre Channel traffic over a TCP/IP network. Acting as a gateway, iFCP lets you link Fibre Channel RAID arrays, switches and servers to IP storage networks while preserving infrastructure investments.

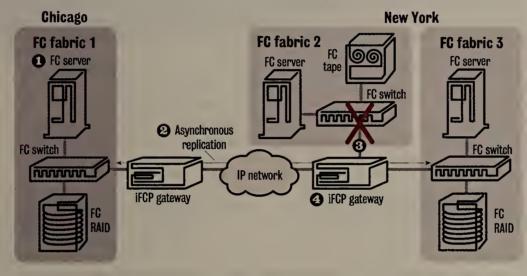
IFCP works by wrapping Fibre Channel data in IP packets and mapping IP addresses to individual Fibre Channel devices. Each Fibre Channel device has its own identity in the IP network so it can individually send storage traffic to, and receive storage traffic from, other nodes in the IP network. By terminating the Fibre Channel signaling at the iFCP gateway and carrying the storage traffic over IP networks, iFCP breaks the distance barrier of traditional Fibre Channel networks. which can extend only 6.2 miles.

IFCP differs from another proposed Internet Engineering Task Force draft standard, Fibre Channel over IP (FCIP). FCIP is a simple tunneling protocol that interconnects two Fibre Channel fabrics to form one large fabric. As such, FCIP is analogous to the bridging approach for extending Layer 2 networks and doesn't offer the fault-isolation capabilities of iFCP.

When internetworking Fibre Channel fabrics, each iFCP gateway domain operates as an autonomous system whose configuration is invisible to the IP network and other iFCP gateway domains. While storage traffic between two nodes in an iFCP gateway is switched or routed using native Fibre Channel, traffic that spans multiple iFCP gateways is encapsulated into iFCP, and then mapped to an IP addresses so

#### **Internet Fibre Channel Protocol**

HOW IT WORKS With iFCP, the IP network is transparent to the two Fibre Channel (FC) RAIDs in Chicago and New York.



A Fibre Channel server writes data to a RAID

in Chicago.

Replication software on the RAID sends a copy to another disk in The iFCP gateway translates the Fibre Channel traffic to IP.

A switch failure in one of the Fibre Channel The iFCP gateway in New York fabrics in New York brings down that portion of the network. However, the iFCP gateway isolates the fault and the replication operations aren't affected.

translates the IP storage traffic back to Fibre Channel and sends it to the local RAID, successfully completing the data replication.

that it can be switched and routed through the IP network.

Each pair of Fibre Channel nodes that communicates across the IP network establishes a separate iFCP session, letting iFCP implementers tweak quality-of-service parameters at a very precise level.

Along with utilizing the built-in TCP congestion control, error detection and recovery mechanisms, iFCP also provides robust error handling on the Fibre Channel side. Error handling is done at a session level wherever possible, so as not to affect storage traffic that might be in transit between other devices.

In the same way that subnet routing provides fault isolation for Layer 2 networks, iFCP brings subnet characteristics to Fibre Channel fabrics. Fibre Channel fabric reconfigurations and state-change notification broadcasts are restricted to the individual fabric subnet. This capability enables, for the first time, massively scalable storage-area networks (SAN).

Another popular application of iFCP is SAN-to-SAN interconnection. Fibre Channel networks are connected to iFCP gateways, which in turn communicate over a metropolitan-area network or WAN.

#### Management and security

The Internet Storage Name Server (iSNS) facilitates automated discovery, management and configuration of iSCSI and Fibre Channel devices on a TCP/IP network. ISNS provides intelligent fabric services such as asynchronous notification to end nodes of changes in the iFCP network and segmentation of network resources into logical groups called discovery domains for management and security. In a Fibre Channel fabric, the Simple Name Server provides these services.

From a security standpoint, IP storage networks combine the elementary zoning and logical unit number masking and zoning partitioning techniques with more advanced industry-standard security features available in IP networking. IFCP relies on IP Security (IPSec) to provide authentication, encryption and data integrity. It also uses IPSec's automatic key management protocol, Internet Key Management, for handling the creation and management of security keys.

The iFCP specification is a proposed standard within the IETF IP Storage Working Group and is expected to be finalized next year. You can obtain the latest iFCP draft at www.nwfusion.com, DocFinder: 4332.

Pammidimukkala is a director of product management for Nishan Systems and is also the iFCP subgroup chair in the SNIA IP Storage Forum. He can be reached at prasad@nishansystems.com.

### Ask Dr. Internet By Steve Blass

We installed a Windows 2000 Server with two Windows ME clients. We turned on Internet **Connection Sharing and managed to get the** computers to use the modem collectively. If we allow the modem to be dialed over the network and manage to get the computers to use the modem, it is activated whenever either machine is logged on, even though no request comes from e-mail or Internet Explorer. Is there a way to let the client computers dial out only when a

#### client uses Explorer or e-mail. How can you hang up from a client after you are finished?

To stop the clients from dialing out when logging on, reconfigure them so that they do not reach out past your network boundary at logon. Even though they are not using e-mail or Explorer, the computers might be communicating with Internet resources, such as a default multicast group or software update services whenever the netconfigure a short "Idle time before hanging up" setting under the Options tab in the modem properties dialog. This will cause the server to drop the line after a short period of inactivity.

Blass is a network architect at Change@ Work in Houston. He can be reached at dr.internet@changeatwork.com.

#### GEARHEAD INSIDE THE HETWORK MACHINE

Gibbs



ast week we promised you a tool that works with the htmlArea utility from ■ Interactivetools.com. HtmlArea, you will recall, turns any plain text entry field (a textarea field) in Web forms into a WYSIWYG editor. The tool we'll be looking at is Article Manager published by the same chaps.

Article Manager is a small-scale content management system (CMS) that can use htmlArea as the client-side editing tool (any text editing field can be enabled as an htmlArea field for WYSIWYG editing).

Interactivetools.com also offers several products built on the same technology, all of which make it possible for Webmasters to leave specific Web content maintenance in the hands of users. The tools include Realty Manager for property listings, Auto Manager for car sales, Doc-Builder for documentation, Job Manager for job placements and News Manager for news publishing.

In particular, DocBuilder is really cool

### Managing articles on your Web server

for . . . guess what? Yep, documentation projects! In fact, the documentation for all the other Interactive.com products is done with DocBuilder (see www.nwfusion, DocFinder: 4337).

**Technology Update** 

If you have Perl installed, running up Article Manager is a breeze; it should take no more than 10 minutes. Don't want to do the installation yourself? Then — and this is way cool — Interactivetools.com will do it for you at no charge! Amazing service. You just give them access rights and they FTP in, transfer the files, and voilà!

Either way, you'd be advised to start with the default configuration, play with it for a bit and then make any configuration changes needed. Article Manager's default presentation display has the site's title at the top of the page, article summaries in the middle, a category filter in the top left (so that you just see the summaries of articles in the category you're interested in), a search function on the bottom left and a headline summary list on the right.

Don't like the layout? You can change everything. The entire system is defined by templates that can be edited with any HTML editor, and the documentation to help you is well-laid-out and thorough.

However, the templates could do with a little more explanation — you'll spend a

GEARHEADSCOREGARD **Product: Article Manager Version 1.23** Overall grade Functionality.....A Elegance.....B Value for money......A Vendor: interactivetools.com www.interactivetools.com

while figuring out how all the pieces work together before you get comfortable making any really serious modifications.

You can create three types of users in Article Manager: Writers, Trusted Writers and Editors. A Writer can submit articles to categories for which he has been enabled but cannot make the articles appear on the Web site — an Editor has to approve them first. In addition, once a writer submits an article no one other than an Editor can modify it (even the Writer can't change the article).

Trusted Writers can create articles in the categories for which they're enabled and can make them visible. They also may view a list of any articles that they've created and can modify or erase them.

Editors are the demigods of the system (the administrator is the übergod): Editors have full control over whatever categories are enabled for them and can modify or delete any articles in those categories. Editors also can view articles that Writers submit and change their status to "visible" or "hidden."

A minor weakness is that Article Manager doesn't provide any explicit hooks for integration with the Web server's user database, but that shouldn't be too hard to fix if you're an experienced Web programmer.

Article Manager also includes a very good search feature (both basic and advanced searches are supported), archiving and a Syndicated Content feature. Syndicated Content lets other sites create a Webfeed from your site through their sites. Note that this is not an Rich Site Summary feed (see "All the news that's fit to RSS," Doc-Finder: 4336), but a chunk of JavaScript that loads from the remote site to the clients, which pulls content from your site.

Article Manager costs \$300, which includes a lifetime license, free installation, free support and free upgrades! We love this product! It is well-designed, wellexecuted, fast to install, pretty bulletproof, well-documented and well-priced.

Submit your articles to gearhead@ gibbs.com.

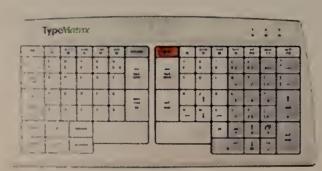


on high-tech toys

#### New ergonomic keyboard

TypeMatrix last week announced a new keyboard that aims to reduce the motions associated with repetitive strain injuries. The \$100 keyboard has been in development for three years to address the need for a mainstream keyboard with advanced ergonomics and superior comfort, the company says.

TypeMatrix (www.typematrix.com) says the keyboard reduces finger, wrist and arm movements through three features — vertical columns of keys, an embedded number pad and the repositioning of some keys. TypeMatrix says these changes help prevent and alleviate injuries, and can increase typing speed and accuracy. The keyboard also has larger Enter, Backspace and Tab keys placed in the center of the keyboard, which lets a person use a



The TypeMatrix keyboard claims to be more ergonomic than r gu ar keyboards.

stronger index finger for these keys. In addition, the keyboard promotes a neutral mouse placement, by letting the mouse sit 2 inches from a user's right hand, the com-

#### Proxim rolls out new wireless gear for SMBs

Proxim (www.proxim.com) last week announced new wireless LAN equipment for small and midsize businesses that works with 802.11b, 802.11a and the 802.11g (prestandard) protocols.

The new equipment includes the Orinoco AP-600a, AP-600b and AP-600g access points. The 802.11g equipment includes a CardBus Card (PC Card) and access point upgrade kit. The AP-600 access points are single-radio devices that are meant for single-client environments, the company says.

Enterprise features include standard Wired Equivalent Privacy encryption, 802.1x authentication with automatic key management, and support for a range of Extended Authentication Protocol types. The equipment also includes 802.1x peruser, per-session encryption keying (for 802.11a and 802.11g products). Wireless Protected Access will be supported through firmware upgrades when the standard is finalized, Proxim says.

Management features of the AP-600 let the device be managed through a Web browser, with full SNMP support (including

Management Information Bases and traps). This lets the devices be supported through standard SNMP management tools. The device also ships with an upgradable mini-PCl radio that can be replaced using the AP-600 802.11g upgrade kit, Proxim says. It also is upgradable to future 802.11a revisions, such as support for 802.11i.

The AP-600b (\$400) and AP-600a (\$550) are available now, the company says. The AP-600g (\$500) will be available in the second quarter. Also available in the second quarter will be the 802.11g access point upgrade kit (\$130), and the 802.11g PC Card (\$100). Proxim also has

lowered the price of its 802.11b PC Card to \$80 (Gold) and \$60 (Silver).

#### Store all your passwords on a PDA or smartphone

DataViz (www.dataviz.com) last week announced its Passwords Plus software, which can store personal information such as passwords and personal identification numbers. The software runs on a Windows PC and includes a Palm OS application to let users synchronize data with a handheld device or smartphone.

The software includes 128bit Blowfish encryption on the PC and handheld, DataViz says. The software costs \$30 and is available now.

Shaw can be reached at kshaw@nww.com.

> Proxim's AP-600 includes 802.11g technology.

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#### It's a Dell, so you know you're going to save money. But let's talk performance.

From standard Fast Ethernet to high-speed Gigabit Ethernet over copper or fiber, Dell PowerConnect switches are designed to offer full wire-speed and non-blocking performance. Recent Tolly lab tests confirmed that the Dell PowerConnect 3248 outperformed industry leaders by as much as 47%. Plus, the PowerConnect 5224 has been lauded by *Tom's Hardware Guide* for its performance and manageability features for the price. PowerConnect switches also are highly interoperable and scalable, making them ideal for building a first-time network or expanding your existing one. So not only will you get one-of-a-kind Dell performance for less but, perhaps more importantly, there'll be fewer headaches too.

Dell PowerConnect 3248 Outperforms
the Cisco Catalyst 2950 and 3COM
SuperStack 3 Switch 4400 by up to
47% in Layer 2 Throughput Tests."
Tolly Group Report #202149
— September 2002



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**EDITORIAL** John Dix

# Shutting out the bad guys

imple is better in the security world, and short of pulling the plug on the Internet, it's harder to get more simple than ActiveScout.

This intrusion-prevention tool from ForeScout Technologies is designed with the knowledge that the majority (some say 95%) of all network attacks are proceeded by some form of reconnaissance. Active Scout sits outside the firewall watching for reconnaissance and, working with a firewall, shuts out bad guys when they try to attack using information gathered during that reconnaissance.

There are no port vulnerabilities to worry about or signatures to update, and no false positives to wrestle with.

Here's how it works. A Scout running on a hardened version of Red Hat Linux (which comes with the product) on a Pentium III-600 or more powerful box is placed in front of a firewall and starts watching for port scans, NetBIOS probes, Simple Mail Transfer Protocol-based interrogations and other types of reconnaissance.

When these sweeps occur, the Scout responds with data that is similar to that sought — such as an IP service or a NetBIOS resource — but is bogus. If and when a hacker tries to come back using the bogus information, Active-Scout recognizes its handiwork and can deflect the attack and either sound alarms or, working with the firewall, shut out traffic from the offending host. Pretty slick.

Other ActiveScout components include the Management Server, which is used to collect information from multiple Scouts and distribute updates when a recon effort has been identified; and the Enterprise Manager, a Java-based tool for generating reports about attack attempts and responses

One downside is ActiveScout only works with Check Point's FireWall-1, although APIs for other firewalls are available. Another problem is that the box doesn't do anything to protect you from attacks that aren't proceeded by reconnaissance, which are apparently on the rise.

Nonetheless, it would appear that using ActiveScout at best would defeat some attacks before they got going and at least reduce the false positives that firewalls and intrusion-detection systems generate. And ActiveScout seems to require little care and feeding, which is a blessing given the hand-holding those other approaches require.

New CEO Kent Elliott says a system with a T-I port costs about \$10,000 retail. Higher-capacity boxes are in the vorks. Recognizing that most security threats are internal Elliott also says ForeSout will come out in the third quarter with a product designed for use in front of internal firewalls to help companies identify local bad guys.

> — John Dix Editor in Chief jdix@nww.com

# opinions!

#### Hitting pay dirt

I've tracked IBM closely for the past seven years and have read thousands of press reports on the company. I just want to say that your story "IBM hitting pay dirt with software push" (www.nwfusion.com, Doc-Finder: 4325) probably is the best written, most concise and accurate description of the company's software group goals, strategy and status that I've read.

> Joe Clabby President Bloor Research — North America Yarmouth, Maine

#### No zero-cost alternative

In his column, "Could 'open DSL' save the ISPs?" (DocFinder: 4328), Thomas Nolle writes: "One important step ... is to stop trying to make the Internet the zero-cost alternative to every other kind of service."

I agree. The trouble with many 'Net denizens is the sort of petrified sentiment that all Internet content must be public domain. Scott Bradner, for example, in the same issue of *Network World*, refers to the "copyright mafia" that seeks to protect intellectual property on the Internet (DocFinder: 4326).

Until this attitude succumbs to rational control, Nolle's sentiment will be regarded with contempt, especially by members of academia. And the Internet, if intellectual property thieves do not suffer legal and social consequences for their dishonesty, will become less and less commercially appealing as a result. Access to it might become very expensive, too, as recapitalization expenses fail to be subsidized by multiple cash flow sources and ISP numbers decline.

> Gerry Geisel Cincinnati

E-mail letters to jdix@nww.com or send them to John Dix, Editor In Chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

#### **Doing it wrong**

Regarding Mark Gibbs' "Backspin" column "Microsoft doing it wrong" (DocFinder: 4327): Amen! I maintain a love/hate relationship with Microsoft's integration of functions into the core of the operating system. Love, because the company puts money in my pocket for repair issues that no consumer should have to consider. Hate, because it can be a real headache to figure out workarounds for the company' products.

And yes, TCP/IP and the Internet are important, but don't bring my entire operating system to its knees just because a browser has wigged out.

Matthew Ranck Owner **Running Time** Spartanburg S.C.

Mark Gibbs is right on with respect to Microsoft doing what it wants. Let the company go; it is helping the competition. It's too late for Microsoft now. Linux is growing rapidly.

I'm tired of Microsoft trying to tell me what I can and cannot do with my PC. Things have gotten good enough on the open source side that I can operate in an environment I trust is working for me, not a technology or media monopoly.

> George Yeager Columbus, Ohio

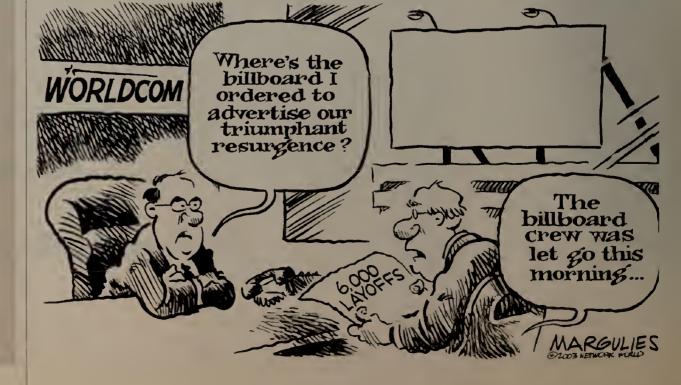
1 am a user of XP and Windows Media Player 9.1 used the beta version of 9 and never ran into the issues Mark Gibbs encountered with Media Player opening itself and not recognizing the CD media.

I give Microsoft a lot of credit for its products and standing. Its products may have a lot of issues, but humans are not perfect, nor is the software world or programmers. There is always the alternative, Macs.

> Jeff Schuyler Youngstown, Ohio



MORE ONLINE! www.nwfusion.com Find out what readers are saying about these and other topics. DocFinder: 4324





**INTRANET ADVISER** 

Daniel Blum

-mail has been part of our personal and corporate lives for a long time, but it never has been secure.

In my book The E-mail Frontier (1994), 1

wrote: "Sometime within the next three to 10 years, any e-mail without a digital signature will be regarded with the same suspicion as a stranger in the airport." A cautious statement at the time, but I never thought it would take this long to achieve secure, signed and en-

In more ways than one, time is running out. We are nearing the end of my 10-year window, and still relatively few users or companies secure their e-mail even though much of it is sensitive. Meanwhile, estimates say that (unsigned) spam messages makes up more than 50% of e-mail traffic, threatening e-mail's very existence as a medium. And we've got good reason to become even more suspicious of strangers, both within airports and on the Internet. While I've yet to succumb to clicking on an "I Love You" or "Big Boss" letter attachment, the proliferation of such garbage in the in-box adds tension to the workday.

Perhaps it is perversity, but after receiving a signed message from a colleague at Symantec, I decided to try signing my own outgoing mail. Using Microsoft Outlook 2000, I requested a new certificate from VeriSign and set a flag causing outgoing mail to be digitally signed.

Soon, the complaints began flooding in. While many of my colleagues who also use Outlook 2000 can read the signed messages,

### Secure e-mail is worth the effort

others cannot. For example, Outlook Web access users cannot read signed messages because Outlook does not support this capability. Nor can users of Microsoft's Macintosh client. Nor can colleagues at a company that uses Lotus Notes, even though IBM/Lotus, like Microsoft, claims to support Secure Multipurpose Internet Mail Extensions.

There are other problems. Encryption in Outlook is a nonstarter for most people because it requires use of (usually nonexistent) recipient public keys, whereas signing requires only the sender's. When our clients have requested encryption, we've had to manually create password-protected, Pretty Good Privacy self-decrypting archives.

To make signing truly worthwhile, one also should set the software to require a password or personal identification number every time the private key is invoked for every signature. This is a pain. And while I picked a short but obscure password that's easy to type, I am looking forward to a later experiment with smartcard fingerprint readers.

Individuals and companies can help by learning more about secure e-mail. It isn't acceptable to send sensitive e-mail over the Internet in the clear. We shouldn't let spammers get away with forging their "From" address. Experiment in your environment to see what can be done, and push your vendors to improve support for interoperable, secure e-mail.

Blum is senior vice president and research director with Burton Group, an integrated research, consulting and advisory service. He can be reached at dblum@burtongroup.com.

It isn't acceptable to send sensitive e-mail over the Internet in the clear.



#### **REALITY CHECK**

Thomas Nolle

n the last couple of months, we've seen a concerted attack on the Internet's internal name servers, and another attack aimed at Microsoft database servers any-

where on the Internet. Security companies have issued alerts. Pundits predict more viruses, worms, denial-of-service attacks and problems. Is all of this threatening to unravel the Internet, as some suggest? Is it possible that government attempts to secure the Internet will end up compromising its principles instead?

The Internet was first deployed as a research and academic network, serving a community that could at least hope to be self-policing. Today, it serves countless users who have no intention of policing themselves. Unfortunately, the basic principles of the Internet, such as universal addressing of members and anonymous routing of messages, make it hard to track down those who would use the 'Net to harm or invade the privacy of others. So the question is whether we could or should change it, and by doing so eliminate a lot of the threats we now face.

My answer is no. That might surprise those who know that I'm no fan of the Internet business model, so I'd better explain.

Adding security to the Internet, whether voluntary or by government edict, requires applying two basic protection schemes. First, make sure that each user has an identifiable address so messages from that user can be traced back reliably. Second, provide a mechanism to do that tracing inside the Internet routing structure. The clear problem with this combination is its invasion of users' privacy. While the argument is often made that tracing an Internet inquiry or message is no different from tracing a call, the differences are profound.

First, you need a court order to trace a call, and the trace is technology-limited to the party or parties covered by the order. You tap a specific line. With the Internet, any tapping will expose the traffic of many others passing through the same nodes and trunks.

Second, measures to provide a hard link between a user and an address for the purposes of identification can't be limited in its application to authorized law enforcement types. If you surf a site,

### Can the 'Net ever be secure?

you leave a trail. In our straw poll of users (not scientific but interesting),90% admitted to some Internet use they wouldn't want their name connected with. It's not all sedition or crime, or even visits to X-rated sites, either. Many just don't want merchants tracking them and getting personal information. We're already fighting cookies and spam, after all. Do we need to make it worse?

Yes! Or so many say. The argument is that surrendering a little anonymity would bring huge benefits in security, in the ability to fight crime, fight terrorism. Well, everybody is entitled to his own view on a privacy-for-security trade, and we're certain to be facing many such trades in our future, but there's a simple out in this case — it won't do any good.

We might be the most powerful and richest country in the world, and we might have the largest number of Internet users, and we might have a completely trustworthy police and judicial process (or maybe we don't — you decide), but we're not alone in the world. Our laws reach to our borders. Suppose we shackle our ISPs with all kinds of laws to allow reliable tracking of miscreants and at the same time protect the masses. Who says those laws would work elsewhere? The latest guess is that the Microsoft SQL worm originated in Asia. Would our laws have prevented it?

That's the rub, folks. Like it or not, the Internet is truly global, both technically and culturally. It's either secure and regulated and policed everywhere, or it's hard to imagine how you'd effectively police it at all. Because we cannot police it everywhere, all our noble efforts will accomplish is to raise the costs of our domestic providers, and surrender our own rights of privacy, while those hackers and terrorists simply move to offshore servers or ISPs.

So what happens now? Not much, because not much is necessary. Has your own life been disrupted by Internet hackers? How about those you know? Sure, it would be nice if the Internet could be made absolutely secure, but the little incremental security that additional U.S. legislation could bring wouldn't be worth the price.

Nolle is president of CIMI Corp., a technology assessment firm in Voorhees, N.J. He can be reached at tnolle@cimicorp.com.

The Internet . . . is either secure and regulated and policed everywhere, or it's hard to imagine how you'd effectively police it at all.



Sure, if you're in a hot spot, then Wi-Fi can give you wireless access. But what about the millions of places where it can't? Fortunately, the one spot where you can find all the answers is on our website. We'll show you how CDMA2000 gives

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# Without the right vision, you're a sitting duck for rogue attackers and cyber phreaks.



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With only a couple hundred bucks worth of wireless gear, war drivers can pull up to your building and hack your network by catching RF waves from wireless devices inside. Your employees may even be making it easier for them by installing unauthorized access points. If you think WEP protects you, think again. It's child's play for techno geeks. So how do you nab them? Get the WaveRunner" pocket-sized wireless security guard. It instantly locates unauthorized users on screen. Or check out our OptiView Wireless Network Analyzer," the only tool to support 10/100/1000 and now wireless Ethernet. Either way, you'll have total SuperVision to catch war drivers red-handed. More good news. The ultimate wireless reference poster is now available.

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# THE EXTENDED ENTERPRISE ISSUE

#### **Erasing corporate boundaries**



Five years ago, MIT Professor Thomas Malone and a research associate, Robert Laubacher, stirred up the business world with a Harvard Business Review article titled "The Dawn of the E-lance Economy." They proposed a future in which

individuals, because they so easily and inexpensively could share business information online, become the fundamental units of the economy rather than the corporate structures of today. Corporations, they said, will devolve into flexible, temporary networks of individuals - e-lancers — formed to produce a certain good or provide a particular service then dissolve upon project completion. (This concept encouraged at least one start-up, Elance, to launch.)

Intriguing when the article was published in 1998, the idea becomes even more so when considered in today's business context. In 1998, companies were just getting comfortable with letting outsiders customers mostly — remotely access corporate information. The extranet was quickly becoming the IT architecture du jour, but technical and political issues limited use mostly to information access rather than business transactions.

Today, IT executives are structuring information architectures around the extended enterprise model in which all business constituents — local employees, remote and mobile workers, customers, resellers, suppliers, other business partners — get access to corporate information and workflow processes from wherever they are, whenever they need it.

Although Malone and Laubacher didn't use the term "extended enterprise" in their essay, they did predict such a step along the evolutionary path to an e-lance economy. They said boundaries between companies would become less important: "Transactions within organizations will become indistinguishable from transactions between organizations, and business processes, once proprietary, will freely cross organizational boundaries."

That, of course, is the precise intent of an extended enterprise. I'd even argue that extended enterprises make corporate boundaries not just less important. but inconsequential.

Imagine the possibilities.

**Beth Schultz** Editor, Signature Series bschultz@nww.com



#### EXTENDED ENTERPRISES TAKE ROOT

We've arrived at the next phase in e-business development, complete with its own architectural design.

#### GRAINGER EXTENDED

Grainger CIO Tim Ferrarell describes how this industrial products and e-business leader has extended its reach to customers and suppliers.

#### CRACKDOWN!

Guardians of the extended enterprise get tough on wayward VPN users with new remote policy enforcement tools.

#### BENEVOLENT ENTANGLEMENT

Halliburton wins the 2003 Extended Enterprise Innovator Award for creating a sophisticated yet easy-to-use portal that delivers rich technical content, interactive tools, collaboration features and e-commerce functions for customers, suppliers and employees.

#### CRM AT THE OUTPOST

These days, providing top-rate service means extending customerrelationship apps to wherever users are — be that a hotel off Highway 9 or a lending office on Route 12.

#### A RESTFUL APPROACH TO WEB SERVICES

Before choosing SOAP to develop Web services for your extended enterprise, consider the alternative, Representational State Transfer,

#### **EXTENDED ENTERPRISE ONLINE**

Head to the Extended Enterprise portal on Network World Fusion for interactive features, more articles and a list of resources. Go to www.nwfusion.com. DocFinder: 4333













# P pushes network intellig

#### ProCurve Adaptive EDGE Architecture helps enterprises cost-effectively

Hewlett-Packard's new ProCurve Adaptive EDGE Architecture aims to turn networking inside out.

> Traditionally, network intelligence resides in the network core, in the form of large, expensive core switches that enforce network access rights, security profiles and traffic prioritization while controlling traffic flow and optimizing bandwidth utilization. Core switches, in turn, communicate with less expensive - and less sophisticated -

Layer 2 switches at the edge, which are designed simply to provide end-user connectivity.

The idea behind HP's ProCurve Adaptive EDGE Architecture is to push many of the capabilities of core switches out to the network edge, while maintaining cost-effective price points in its edge switches. By providing more intelligence at the point where users first connect to the network, HP says the new architecture helps enterprises meet the challenges presented by three of today's most urgent requirements: security, mobility

and convergence. HP also recognizes that these challenges are interconnected and takes a holistic approach to addressing them, rather than tackling each independently.

"It's a good architecture," says Vijay Bhagavath, telecom analyst at Forrester Research, a Cambridge, MA-based consultancy. "Users really need embedded security, mobility and traffic features at the port level, in addition to the application level. And this is an inexpensive way to do it."

#### **SECURITY**

The Internet, mobile workers, portable network devices - they all seem to be conspiring to open security holes within corporate networks. Traditional network architectures, with all intelligence locked in the core, fail to adequately address the requirements and the risks these technologies present. HP's ProCurve Adaptive EDGE Architecture, however, enables network managers to push security to the edge of the network, addressing risks right at the point where users first connect.

HP's architecture enables the network to adapt to whoever, or whatever, is connecting at the time, providing at the edge the

appropriate levels of security and access on a granular, per-port basis. This means you don't need to defer decisions about security until packets reach the network core. With HP ProCurve Adaptive EDGE, authorization and security get addressed at the point where access is physically attained, eliminating a host of security risks

Conversely, access and network services are assigned on a per-user basis. When a user logs in, during the authentication process the HP ProCurve Adaptive EDGE-

The HP ProCurve 5300 Switch, available now, uses HP-engineered ASICs to ensure edge-based control.

enabled switch configures the user's access port to support the privileges and services that user needs, whether it be a mobile worker, a vendor partner or an internal R&D engineer. Network security and access profiles are pushed to the edge, where they're needed most.

#### **MOBILITY**

It's not uncommon to see the same user link up to the corporate network via a desktop, a laptop, a home network, a wireless PDA or even a cellphone. Since today's workers no longer view the hardwired desktop as their sole link to corporate resources, today's networks can't either. Networks need to adapt to support this range of devices and access.

To provide wireless security, you must start with a secure wired network, and ensure that the intelligent devices at the wired edge can cooperate with the those at the wireless edge. HP's ProCurve Adaptive EDGE Architecture takes this into consideration. Because it pushes network security and service level profiles to the edge, the architecture ensures that users have secure access across a range of transports, both wired and wireless, whether they are inside or outside

the office. Adaptive EDGE-enabled switches can proactively support the range of mobile users at the point of access, eliminating the complexities and delays associated with straight-to-the-core architectures.

For example, if consultants or vendor partners plug their mobile laptop into a specific network port and log onto your corporate LAN, that port can be immediately configured to provide the services they need, while restricting access to the resources and services they shouldn't see.

#### CONVERGENCE

Today's data networks must support a range of applications, including data, video and voice. As more organizations deploy applications such as videoconferencing and voiceover-IP, it is becoming clear that traditional IP networks, which focus intelligence at the core, inadequately address the traffic prioritization and quality of service issues that these applications raise.

Converged applications require that features such as QoS, traffic conditioning and rate limiting are enforced at the

edge in a flexible, adaptive manner. Only then can these converged applications coexist successfully on one robust, highly available network.

By pushing such intelligence out to the edge, HP's ProCurve Adaptive EDGE Architecture ensures that service levels remain high, and cost-effective, from one end of the network to the other - whether the user is connecting via the wired or wireless network.

Traditional network designs can't support this wide range of demands for services and cost-efficiencies without making trade-offs. For example, organizations may be able to engineer a very secure network, but not support a highly mobile work force. Or they may be able to engineer a network for mobility, but lose some security safeguards.

With intelligence at the edge, networks can also adapt to the demands of new applications without costly redesigns. The features and functions needed for the applications of today as well as tomorrow are built in and ready to deploy.

#### COMMAND FROM THE CENTER

While addressing these needs for security, mobility and convergence, HP's

Learn more about HP ProCurve Adaptive EDGE:

# ence out to the edge

### address security, mobility and convergence demands.



invent

ProCurve Adaptive EDGE Architecture also ensures that the entire network can be managed from a central location.

In other words, control to the edge is paired with command from the center, driven by business needs and priorities.

#### **HOW IT WORKS**

There are two key technologies at work in HP's architecture: Remote Authentication Dial in Services (RADIUS) for authenticating the users and IEEE 802.1x standard for port based access control.

A central database – the command from the center portion — holds information about the groups or "business communities" that each user belongs to and what resources he or she should be able to access. When a user logs on to the network, the switch gets profile information on the user from the central database. That information is then translated into specific network commands that the switch uses to configure the user's port.

"Because it uses 802.1x, it lets you create a layer of security right at the network layer," Forrester's Bhagavath says.

HP currently offers an authentication, authorization and accounting (AAA) server that could be used for these profiles, but organizations could also use an Oracle human resources database, for example, making it easier to change an employee's privileges upon hiring, transfer or resignation. "We are investing heavily to make command from the center not only easy but configurable based on business terms, not network parlance," says Brice Clark, HP ProCurve Worldwide Director of Strategy and Business Planning.

With network privileges enforced at each port depending on the users' privileges, HP helps organizations shift from giving users network rights based on where they are, such as at a certain port where the PC is always plugged in, to giving them rights based on who they are — even if they're accessing the network from a remote location.

#### **INCREMENTAL UPGRADES**

Clark notes that the ProCurve Adaptive EDGE Architecture is also designed to play in multivendor networks. "Wherever you need that extra level of control out to the edge, whether it be because you're putting in a new mobile network or supporting a certain segment of users, you can put in one of these switches, get the control you need and still interoperate with the rest of the network," he says. That means no forklift

upgrades are required to begin taking advantage of the architecture. ProCurve Adaptive EDGE switches will work with existing 802.1x-compliant core switches and can even extend their life by offloading many decisions that can affect the performance of core switches.

Forrester's Bhagavath agrees, but notes that users should pay close attention to how each vendor implements 802.1x and other policy-based standards.

"They may all support 802.1x authentication, but they may not implement the policies in exactly the same way," he says. "They may have different quality of service attributes, different queuing schemes, and so on. It's something users need to be aware of."

#### **CONTROL TO THE EDGE - NOW**

Elements of the HP ProCurve Adaptive EDGE Architecture are available now, including the HP ProCurve Switch 5300, which debuted last summer. The 5300 is an edge switch that uses HP-engineered ASICs to support the new architecture and ensure the edge-based control.

"Anything in the data path has to be in ASIC," Bhagavath says. "In Ethernet switches, there really isn't a control plane, it's mostly data plane, so it makes sense that this would be implemented in ASICs."

At a street price of just \$65 per 10/100 port, the 5300 can handle a broad range of security chores as well as Layer 3 and 4 traffic prioritization features. For example, the 5300 lets administrators assign a user to a virtual LAN within the AAA server database and then use 802.1x to enforce that assignment.

"Products like the 5300 let customers deploy next-generation intelligence at the network's edge at an affordable price point," Clark says.

### AN INDUSTRY-STANDARD PATH TO THE FUTURE

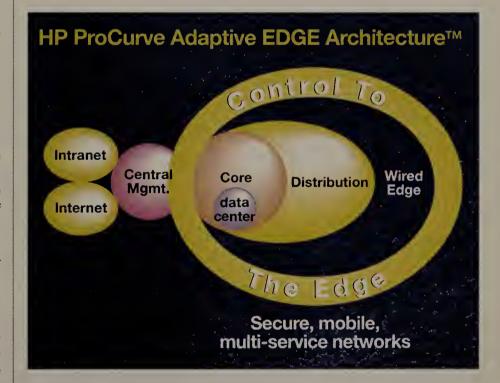
HP will build on the family of ASICs used in the 5300 to deliver additional command from the center products in phases throughout the rest of this year and into 2004. New functions will include support for additional databases and authentication servers.

As it evolves, the HP ProCurve Adaptive EDGE Architecture will deliver on five key areas, consistently employing industry standards to support control to the edge. "The whole idea is to support industry standards," Clark says. "The last thing organizations need is to get locked in to a

proprietary technology as networks and applications evolve." The five areas are:

- Providing end-to-end traffic monitoring to control bandwidth optimization across the network
- Full integration of industry-standard VLAN and security to provide access management features unavailable on non-EDGE enabled ports
- Industry-standard traffic routing and Layer 2 meshing for path failover and multipath load balancing
- Traffic prioritization features to provide traffic type coexistence and QoS functions for current and future convergence needs
- Centralized command of the edge for easy implementation and management of end user security and application policies

The HP ProCurve Adaptive EDGE Architecture is poised to enable today's net-



works to evolve to meet new business needs.

"As more advanced applications like mobility and multi-service networks become pervasive, more functionality must exist at the edge of the network to characterize and isolate traffic," says John McHugh, vice president and general manager, HP ProCurve Networking Business. "The new generation of network-based applications customers are implementing can deliver real efficiencies, but can also make the underlying networks far too complex and expensive if not architected appropriately. Only the HP ProCurve Networking Adaptive EDGE Architecture lets customers implement the needed functionality at prices they can afford."

# EXTENDED ENTERPRISES

We've arrived at the next phase in e-business development, complete with its own

FY JULIE BORT



ow that the majority of corporate

deep in e-business,

are deginning to move Unit companies into the next phase. They are

building infrastructures that are

tightly integrated with systems

from these once labeled as fout-

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The organism of the production of the production

The extended enterprise model

Shared IT resources comprise the nucleus of this next-generation business infrastructure. Security perimeters protect the nucleus and each additional layer. Access is based on role rather than physical location.



Core IT resources

**Custom** applications

Public applications

#### The model grows up

Extended enterprises — which go by many names (see related story, page 45) — let constituents work in real time across heterogeneous environments, and across public and private networks, to get needed information to the right person or application. While architectural details vary from company to company, a generic conceptual model of the extended enterprise has begun to emerge. This model shows a big architectural shift (and more complex design) from the huband-spoke model of the mainframe or the three tiers of client/server (on which early e-business systems, too, were modeled).

Imagine a dartboard. Core IT resources, such as hardware, mission critical software and data, go in the bull's eye, while e-business-related applications for customers partners and roving employees reside in the next ring. A security perimeter meant to restrict access protects each ring. Public data or consumer applications, if a company has any go in a third ring. A security perimeter also protects this ring, although it is less rigid than the perimeters for the inner rings because 1 goal is to protect content, not to restrict access. Applications residing in the e-business or public layers

might call on data and network connections in the core, should they have the security authority to do so. Users rely on the gamut of network connections to access their areas of the extended enterprise.

#### Complexity at the core

Simple enough ...or is it? Defining what falls in the core can get complicated fast because, in the extended enterprise, those IT resources don't all belong to you. Ownership slops over neatly defined perimeters into customer, supplier, business partner and, in some cases, employee domains (in the latter case, through PDAs, cell phones and DSL connections).

When zooming in on those core IT resources, we see five elements, owned and shared among the four user groups. First we find business-critical applications, such as those used for the general ledger or for manufacturing control. These are often Webified. An order-entry application residing in the middle or outer ring might ask for data from, or feed data into, the core general ledger application. But customers do not get direct access to the core application, which is heavily protected from anyone outside the company — and even from many employees.

Middleware glues the applications together and acts as the go-between for the user interface and data, or the network management tasks. Servers and storage come next, contributing processing power and data management. This depends on network hardware to transport the information, and all of it rests on methods for connecting to the extended enterprise.

These symbiotic IT relationships create a service-oriented business ecosystem. Here's how the order-entry process might work within such an environment:

A customer (or automated system via Web services) places a product order through a Web-based application. The application verifies the product is in stock, calculates total cost by adding in shipping fees it has retrieved from the appropriate business partner and issues an electronic invoice. Then, because fulfilling the order drops internal stock below a predetermined threshold, the application sends suppliers a bid request for raw materials. But that's not all. The application checks with a CRM system to determine whether the customer needs a purchase order number. If so, it requests one, which triggers creation of a purchase order on the customer's end. Confirmation numbers are exchanged and payment is collected and sent to



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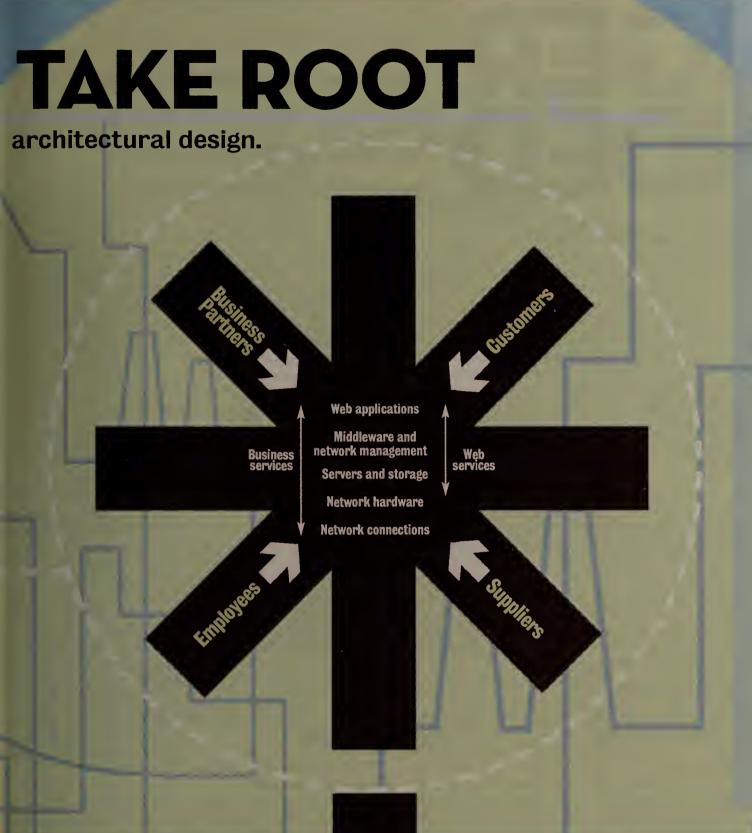
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#### Name that network

Nearly all industry thinkers agree that a major shift is taking place in e-business infrastructure development. The term 'extended enterprise' is used commonly, but here are a few others:

- The real-time enterprise. This term focuses on the speed at which information becomes available. When all constituents are armed with data in real time, latency among automated IT systems and human decision-makers is virtually eliminated. This squashes inefficiencies and increases revenue per employee, so the premise says. Meta Group predicts that the real-time enterprise will be the norm by 2008. By then, it says, most companies will have converted their current collection of batch-processing and near-real-time information systems to super-speedy, "just-in-time" processes.
- Dynamic commerce services. IDC uses this phrase to underscore the platform-independent, Web services aspect of the next-level e-business infrastructure. IDC predicts Web services will grow from a \$1.6 billion market in 2004 to \$34 billion by 2007, when tallying up software, services and hardware sales.
- The virtual extended enterprise.
  Burton Group couples this term with a conceptual model that names four layers: resource, control, perimeter and extended perimeter. These correspond, respectively, to basic IT services of the network, servers and data; employees and security systems; partners; and suppliers and/or customers.

- Julie Bort

the general ledger application.

Customers, on-site customer service representatives and traveling salespeople would use this same order-entry business service. Other people, too, would tap in: the accounts receivable people at the company looking to validate data, suppliers and third-party partners (such as shippers) looking to issue their own invoices, and accounts payable people at the customer, looking to reconcile accounts.

#### Elegant and intermingled

Intermingled ownership no doubt causes problems. For instance, how can data be coded so everyone's systems can understand it easily? How can a person's identity and role be determined when location is no longer a factor? How can reliability be increased and finger-pointing minimized when a system failure occurs?

Still, gazing past such short-term, technical issues, we can see that the extended enterprise is an elegant design. Sharing a single ecosystem is certainly more efficient than

telling every company to fend for itself. Through widespread initiatives such as myriad Web services development efforts and the Liberty Alliance's identity management specifications, the network industry is trying to address the technical burdens of sharing data, software and hardware.

Network executives who get involved in, or at least follow, these efforts will be ahead of the competition as extended enterprises proliferate and grow more sophisticated. (They will also get their say on how their data should be shared.)

In a survey of 150 Network World readers conducted in December 2002, we found that most organizations have begun the design and development phase of their extended enterprises, which they see as growing in business importance. Some 98% of respondents said the extended enterprise has some level of importance to the successful operation of business, with 84% calling that level either "important," or "very important."

And the extended enterprise concept is shap-

ing purchasing decisions on new enterprise applications. More than 90% of respondents said they want new applications to have solid security features as a result of the extended enterprise. More than three-quarters also want support for Web standards and a clear strategy for how the vendor plans to implement Web services. The ability to integrate with external partner applications is considered by 61%, and 45% want their new enterprise applications to be outfitted for mobility and wireless access.

Readying the infrastructure for an extended enterprise model also means embedding intelligence into the network in every feasible way Improved automation methods within storage, server, routing and network management products will let systems heal themselves. This will improve resiliency when so much rides on a single, interwoven system. Such intelligence also promises to ease problem diagnosis—a sticky issue when multiple parties own systems.

But most importantly network executives must take responsibility for visionary leadership. Your work now touches everyone who comes in contact with your company. The changes in your IT systems affect how your company does business and vice versa.

# GER GENDED

Grainger CIO Tim Ferrarell describes how this industrial products and e-business leader has extended its reach to customers and suppliers.

Grainger, a 75-year-old industrial products giant, has a laser-like focus when it comes to serving its 1.5 million customers on their terms. The company, which supports manufacturing facilities in markets ranging from hydraulics to office supplies, has harnessed the Web to reach buyers and to monitor its 1,200 suppliers.

Consider Grainger's Web application Supply
Chain Sentry, which the Chicago company uses to
rectify problem shipments. If Grainger receives a
damaged shipment, it takes a digital photo and
sends it to the supplier. The supplier can dash off
the replacement merchandise after using the digital snapshot to verify the damage. A vigilant gatekeeper, Supply Chain Sentry also uses paging
technology and pop-up windows to alert
appointed contacts at suppliers of potential problems with shipments. CIO Tim Ferrarell describes
this unique application and others Grainger uses
in its extended enterprise in an interview with
Jennifer Jones, on assignment for Network World.

What makes Grainger unique?

What separates us is our use of IT to integrate our various sales channels. This integration helps Grainger provide seamless service to customers whether they order via phone, fax, the Internet or the branch location. Grainger's goal is to make it easy for customers to find the products they need and get them quickly.

Saving customers time and effort requires being close by with solutions to their problems. Grainger accomplishes this is by deploying 'dispensing and locker' technologies at customer sites. These allow us to get inventory

closer to the customer so it's there when needed. This equipment must be connected to customers and to Grainger, and work in a highly integrated fashion.

Give us some details on dispensing and locker technologies. How are they part of your extended enterprise?

Historically customers who wished to carry an inventory of frequently used products on-site stored them in a tool crib or some other manned storage facility. The challenges with this approach are twicelly record keeping and inventory.

inventory gets invested elsewhere.

Grainger receives

approximately

orders and

handles about

customer contacts

daily.

Grainger's lockers work in a similar fashion, except they are controlled delivery points for previously placed orders. To extend our business, we realized we had to have an architecture that let a lot of what we do happen at the edge of the enterprise. We maintain a competitive advantage by providing the easiest access to our customers at the point closest to their actual need. We grew a \$4 billion business [this way].

Now technology is enabling that strategy to go a lot further. Through our dot-com initiative, we're pushing

> even closer to the customer with features such as search capabilities that allow users to select product lines and have access to those products 24-7.

We think of this as a multichannel model. Whether a customer clicks online, places a call or stops by the transaction needs to flow into the same system. Naturally, that has posed challenges for our network. But we've managed to accomplish this by harnessing the efforts of vendors such as WebMethods and by using technology such as [electronic data interchange]. We use the connectivity tools that work for our cus-

tomers. EDI will be around for a while, and we will offer it to customers who prefer it. WebMethods [integration software] connects our Web site to our core order management system.

### What challenges did you face in building your extended enterprise?

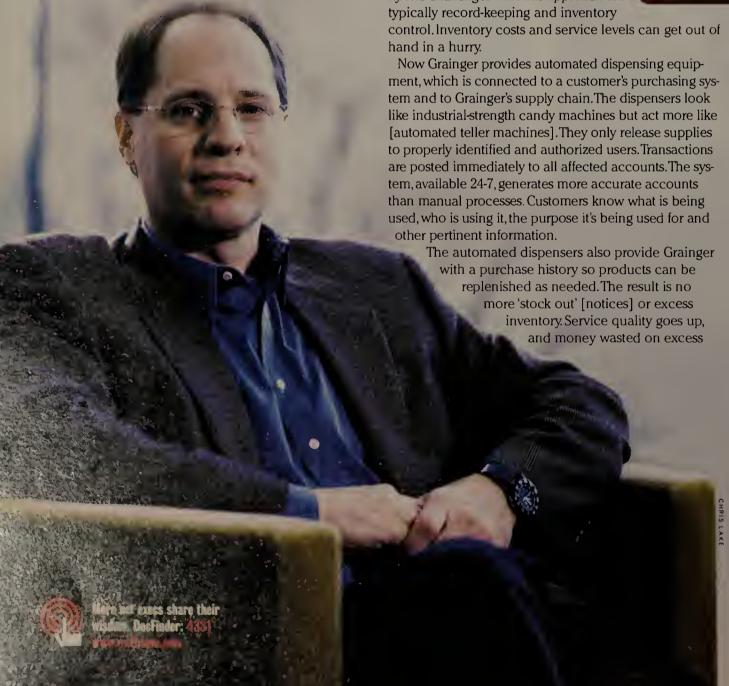
Security comes immediately to mind. Because our networks were designed to keep transactions inside the basic system, we've had to employ many of the more common security checks. Security also is an issue in that we constantly keep pushing the boundaries of where information and transactions take place. For example, there is now a move among manufacturers to incorporate the use of handheld access devices into their systems, and that can easily leave a system exposed if safeguards are not in place.

Grainger is moving from a location-based security model to a role-based security model. In doing so, we will need a convenient and effective authentication mechanism to provide secure access. We are experimenting with physical and software tokens, and we might consider biometrics.

#### What's next for your infrastructure?

For us, the future always rests with the needs of our customer. For example, we might be supporting a maintenance person who is working in a 100,000-square-foot manufacturing plant, where the inventory room is at the far corner, and he wants to place an order from the other side of the facility. This person does not want to waste time and must have in his pocket all of the information he needs to place an order. Those are the kinds of practical challenges that are of major importance to us.

Jones is a freelance writer in Vienna, Va. She can be reached at jjwriterva@aol.com.





NETWORKS

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Guardians of the extended enterprise get tough on wayward VPN users with new remote policy enforcement tools.

Dennis Peasley, corporate information security officer at Herman Miller, might not be able to see the folks sitting at the furniture giant's remote offices, but, by using special new software, he can force their compliance with security policy.

#### **■ BY JOANNE CUMMINGS**

A developer takes her laptop home to get extra work done. Before she starts, she disables her antivirus software because it scans every file and tends to bog down the compile. The code compiles, she checks her work and is done with it for the evening. She then reads a few e-mails in her personal account and surfs a couple of Web sites. Before logging off for the night, she decides to upload her just-finished code to the office server, so she accesses the corporate LAN remotely via VPN. Unfortunately, she forgets

to reactivate her antivirus software, and unbeknownst to her, the laptop has become infected with the Nimda worm. The result is Nimda wreaks havoc across the corporation.

Welcome to Dennis Peasley's nightmare. A scenario much like this one led Peasley. corporate information security officer at Zeeland, Mich., office furniture giant Herman Miller, to roll out a new breed of security tool — remote policy enforcement software — to 900 remote users worldwide. "If we had remote policy enforcement in

place at the time, Nimda never would have gotten into the network," says Peasley, who now uses Zone Labs' Integrity remote policy enforcement tool. "We never would have let the developer in until the firewall and antivirus [signatures] were up to date."

#### **Babysitting network access**

Within the last year or so, remote policy enforcement tools have become available from vendors such as InfoExpress, Sygate Technologies and Zone Labs. The tools consist of client software, which has personal firewall and management pieces, and server software that communicates with the client and integrates with the corporate VPN. The tool checks whether remote VPN users have specific files installed, active and working properly, such as personal firewalls and antivirus programs. If the remote machine doesn't meet corporate security requirements, network access is denied.

Offending users are then redirected to a "quarantine" area on the remote policy enforcement server, from where they are prompted to turn on the firewall, restart the antivirus program or download the latest signatures — whatever is required to come into compliance. Only when the remote machines meet the specified security profile are they granted access to the corporate network.

"When remote users connect to Herman Miller, all they can get to is the Integrity server," Peasley says. "It checks that they have the Integrity client software running and that they have their personal firewall and the latest antivirus [signatures]. It works as a logical [demilitarized zone] in our environment. Once they have all the criteria satisfied for connecting in, then the system lets them log on to the rest of the domain."

**Early users say** the tools are far better than a VPN alone. "VPN vendors should have had something like this



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#### Policy, continued from page 48

right from the beginning," says Ken Tyminski, chief information security officer at Prudential Financial, in Newark, N.J.

Prudential is rolling out Sygate's Secure Enterprise remote policy enforcement tool to 20,000 remote users who currently access the network via a Nortel VPN (see related story at www.nwfusion.com, DocFinder: 4321). "Like most companies, we have a secure VPN, but having a secure VPN and someone connected over it who's not running virus protection is the same as providing a very secure conduit for spreading a virus. That's why these tools are so important," he says.

Before these tools, keeping remote machines secure was hit or miss, users say. "Many of the people who conmake configuring them to manage thousands of users difficult.

"This market is backwards," says Jason Wright, industry analyst/program leader for security technologies at Frost & Sullivan. "Most security technologies start targeted to the large enterprise, and then filter to the middle market, small office/home office and consumer. Remote policy enforcement tools started at the consumer end, and now vendors are trying to build up the scale to address the enterprise market. But starting small and then building in enterprise-level capability and management is a challenge."

To that end, all major vendors are concentrating on ease of management in their latest releases. For example, Zone Labs' Integrity 2.0, which debuted at Comdex Fall 2002, now lets users set policies based on user groups,

> rather than simply the VPN gateway they access. Similarly, Sygate's latest edition offers better reporting tools, and InfoExpress' latest version of Cyber-Gatekeeper adds support for additional types of remote computers, including Macintosh and Windows CE systems.

"If you can't manage something or configure it correctly, then it won't be secure. These tools are getting better in that respect. We're seeing more features, more options, better intuitive interfaces, all of which will improve the usability and the security. But it's something to be aware of," Wright says.

The current tools also are fairly dependent on the VPN installed, and those that can be managed from the VPN console provide the most functionality. When bundled with the

Cisco 3000 Series VPN products, Integrity can rely on the VPN to ping the remote machine constantly and ensure compliance even after initial logon. Similarly, InfoExpress and Sygate have a handful of VPN partnerships in place and are scrambling to get more.

"Users really hate having two management consoles one for the VPN and one for the endpoint security,"

Cost also is a factor. In the past year, Herman Miller's Peasley has seen Integrity's per-licensing cost nearly double as Zone Labs adds functionality and keeps up with the going market rate. His initial rollout to 900 users cost about \$30 per seat, or \$27,000. Now, licensing the tool for 400 users is going to cost him about \$25,000, he says."I'm still going to buy the licenses, but I can't do the whole enterprise as planned," Peasley adds, noting that he had wanted to outfit each of the company's 1,600 laptops with the software. "That's getting nuts."

To avoid such sticker shock, Paul Burroughs, IT project manager for VPN support and systems integration at KPMG, in Montvale, N.J., plans to buy licenses for all seats at once. Burroughs is considering several remote policy enforcement tools, including InfoExpress' Cyber-Gatekeeper, to protect his more than 26,000 users. InfoExpress charges \$6,500 per server, which supports 10,000 concurrent users.

"We're going to roll [remote policy management] out to everyone because we rolled our remote-access product out to everybody," Burroughs says. "Whether they're

using remote access or not yet, we have to do that. But we're going to buy all 26,000 licenses upfront, so we avoid those pricing issues."

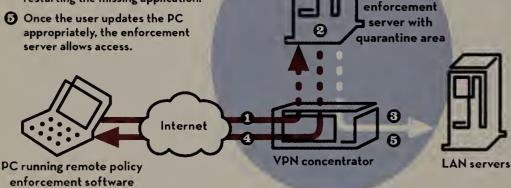
Prudential's Tyminski plans to deploy policy enforcement servers to protect the network internally, he says. This will stop, for instance, the case where a user physically traverses the safeguards by entering the office, yanking out a sanctioned machine to plug in a laptop. Using Sygate will deny that user network access.

"When you think about it," Tyminski says, "the ability to control someone who's connected to your network, whether remotely or locally, to enforce your policies is key."

Cummings is a freelance writer in North Andover, Mass. She can be reached at jocummings@attbi.com.

#### How remote policy enforcement tools work

- A user establishes a VPN connection to the corporate network and the remote policy enforcement client software scans the PC. It sends a log to the enforcement server, which collaborates with the VPN concentrator.
- The enforcement server audits the PC log for conformance with corporate software policy. For example, it verifies that personal firewall and antivirus software are turned on and up to date.
- 1 If the PC meets software policies, the enforcement server allows access to corporate resources.
- 4 If the PC is not in compliance, because antivirus software is turned off, for example the enforcement server denies access, redirecting the user to a "quarantine" area on the server and prompts for restarting the missing application.
- Once the user updates the PC appropriately, the enforcement



Remote

policy

nect remotely to us do so infrequently," Tyminski explains. "Virus protection gets loaded on their machine, but they don't get the updates because when we distribute them internally, their machines aren't connected. We distribute to them the next time they connect, but when they're coming in over a low-speed connection and we try to push some of the signature files, it takes forever. And I suspect that as a result of that, people disable the software. Sygate ensures that the software is stable and current."

The tools also can block inappropriate software. Peasley says Integrity, through the firewall piece, logs every application accessing the Internet. "So we see when people are running Morpheus for peer-to-peer sharing, for example, which we don't allow in our environment," he says. "We then block those with the firewall. But we can also see the new ones show up and address them as we see fit. It's very proactive."

Tyminski agrees. "You wouldn't want somebody running a music-sharing program while connected to us. Sygate's tool lets us check the remote machine for things like Napster or Gnutella and then block access if it finds them," he says. Once the offending software is removed, the remote machine can be granted access to the network.

The software also ensures that the remote PC is running current levels of corporate software.

#### Enterprise challenges

Stifl, the tools aren't perfect. They mostly grew up from consumer-based personal firewall products, and that can

#### Five critical decision points

Ask vendors these five questions to determine the best policy enforcement tool for you.

1. How well does it work with your VPN?

"You want to see if the vendor has partnerships and understand how tightly it can integrate with the [existing] VPN gateway and management console," says Jason Wright, an analyst with Frost & Sullivan.

- 2. How well does it scale? A tool that can manage and enforce policies for 900 remote users might have trouble scaling to 26,000.
- 3. How easy is it to manage? Ideally, the remote policy enforcement and VPN software can be managed from one console.
- 4. Can it enforce policies beyond the existence of firewalls and antivirus?

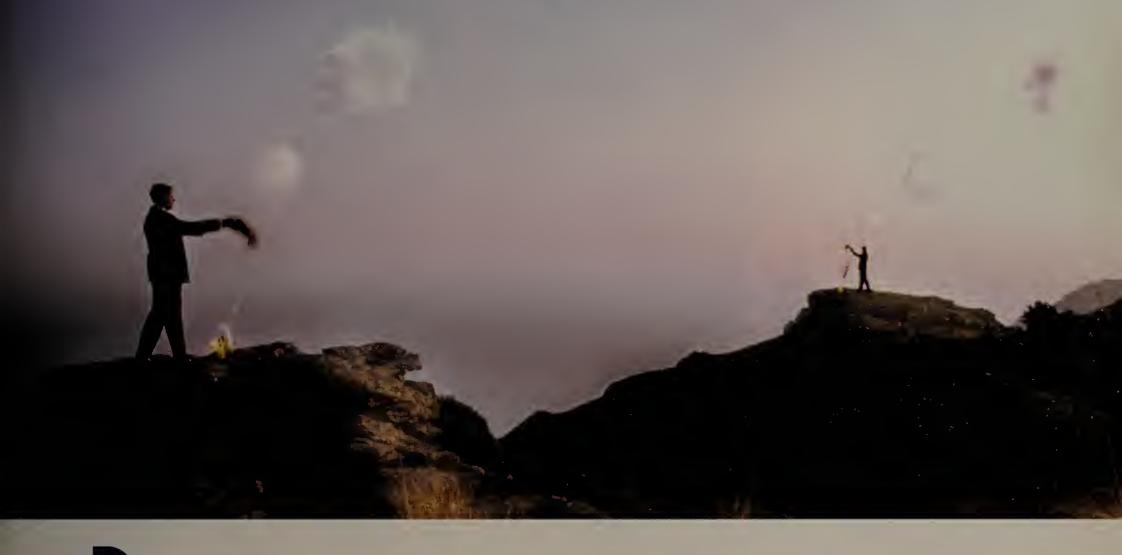
The best tools ensure the latest versions of firewall and antivirus signatures are in place, as well as the standard operating system and office productivity software. It should also be able to block nonsanctioned software.

5. How well-designed is its quarantine area? The point of remote networking is lost if access is denied and productivity thwarted. Tools should provide a safe, easy-to-navigate area where users can get in line with security policies. The best tools offer Web-based quarantine areas with user-defined hotlinks to virus signatures or other downloads.

- Joanne Cummings



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#### PICKING THE WINNER

The Extended Enterprise Innovator Award honors user organizations for significant projects that connect employees, customers and business partners. through one technology architecture. Network industry professionals submit nominations, which Network World editors evaluate for technical sophistication, innovation and business impact.

This year, oil industry giant Halliburton wins the award for a complex business portal rich with interactive tools, collaborative applications



# and e-commerce capabilities. The portal draws on the company's back-end ERP

abilities. The portal draws on the company's back-end ERP applications and serves employees, customers and suppliers. In its first year of operation, the my-Halliburton.com portal influenced a reported \$120 million in sales, improved corporate efficiencies to the tune of \$500,000 and led to reduced bill payment cycles.

Already a big thrust, sollaboration promisis to become a portal hillmark as developconsider additrodal s of openpo the line of communication among the threa scanningents, and expect by between addituppliers.

Halliburton wins the
2003 Extended
Enterprise Innovator
Award for creating a
sophisticated yet easyto-use portal that delivers rich technical content, interactive tools,
collaborative features
and e-commerce functions for customers, suppliers and employees.

**BY BETH SCHULTZ** 

enevolent entanglement." The phrase might be a mouthful, but the concept is what building an extended enterprise network ought to be all about, says Brandon Lackey, portal program manager at energy industry giant Halliburton. In other words, involve customers and suppliers in a business ecosystem that provides such high value, so simply, few would leave it.

"We want our customers to be so enamored with our simple processes, ease of use [and value provided through the portal] that they would never switch from Halliburton based on marginal price differences," Lackey says.

That's the vision Lackey followed as he oversaw the initial development of the myHalliburton.com customer portal, and that guides him as he conjures up new ideas for how to extend the portal's usefulness. Halliburton has now invested approximately \$5.3 million in myHalliburton.com and has earmarked \$2.4 million annually for ongoing development of the portal, already rich with interactive tools, collaborative applications and e-commerce capabilities that draw on the company's back-end ERP system.

MyHalliburton.com, commercially launched in January 2002, has become the destination of oil company technical specialists and procurement and accounts

See Halliburton, page 54



demands is becoming increasingly more difficult with tighter budgets and fewer resources. As distributed environments migrate toward a more centralized management approach, pressure has been placed on the ISV software, which is unable to provide a "singular interface" to manage the data and its supporting physical resources. Join keynote speaker, W. Curtis Preston and leading storage software and hardware companies as they respond to this burgeoning requirement in our upcoming NSU entitled: Storage Management.

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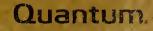












#### Nagar (Ods. 9.) Sign

#### Hallipertue, continued from page 52

Daysible managers when they need something — virtusilly daything — from Halliburton. The site also has become an open open for employees and suppliers, as Mailiburton out id turned it from a dedicated customer portal to an extended business ecosystem serving all three contingents. Collaboration among the groups is a focus.

The portal, powered by Plumtree Software's Corporate Portal 4.5 software, serves about 4,100 customers. 1,700 suppliers and 10,000 employees, says Shawn LeBlanc, the company's director of emerging applications. As of late 2002, daily hits reached about 92,000, says Jim Schmitzer, development manager in emerging applications.

A point of differentiation between myHalliburton. com and many other portals is how tightly it integrates with a back-end ERP system — in this case, SAP's R/3. Plumtree Gadget Web Services, special Web services components, pull data from the SAP application to give portal users the ability to check account status, submit invoices and conduct other business transactions.

Lackey says he feels myHalliburton.com is one of the bigger payoffs from a previous, five-year ERP deployment. "You really begin to understand the benefits of putting in an integrated SAP system when you start presenting information to customers, employees and suppliers through a portal like this. It becomes evident why you went through all the pain," he says.

"The portal is the key to the delivery for all of our new IT initiatives," adds Art Huffman, company CIO. "We have spent the last several years implementing ERP and data-capturing systems. We will spend the next several providing visibility into that information, analyzing, interpreting, reporting and measuring it to drive our business. The portal will provide that customized and personalized platform for our employees, managers, customers and suppliers to interact with each other in a common environment, hiding our complex IT functions in the background."

Halliburton wins our 2003 Extended Enterprise Innovator Award for developing an extensive collaborative portal that relies on integrated ERP functions to serve customers, suppliers and employees. In its first year, it influenced \$120 million in sales, according to customer surveys; improved corporate efficiencies to the tune of about \$500,000 by enabling better access to technical documents; and led to reduced payment cycles.

#### **Using explosive apps**

Halliburton is one of the world's largest providers of

products and services to the oll and gas industries, employing more than 85,000 people in 100 countries. The company's extensive customer list includes giants such as ExxonMobil, Chevron and Conoco, which turn to it for products and services running the gamut from drill bits to subsea engineering. With complexity marking the relationship between Halliburton and its customers, Lackey knew any broad customer-related project he undertook would need to be exceedingly thorough to be successful.

So after Lackey and his business development team dreamed up the portal concept in November 2000, they spent the next three months fleshing it out. Then, guided by Microsoft Solutions Framework Process Model for IT projects, developers worked on the portal from March to August 2001, and ran stabilization and pilot tests till the end of September. Feedback came from the highest corporate levels, with the vice president of business development providing approvals as project sponsor. The site was available to select customers in October 2001, and to all by the following January.

Developers focused first on how to provide customer techies — the geologists, geophysicists and production engineers working for major oil companies, for example — access to technical information on the "thousands and thousands" of products and services Halliburton offers from a user-friendly, personalized environment, Lackey says. White papers, datasheets, case studies, best practices — these were all givens, but so was the need for interactivity. Developers understood that technologists would highly value 3-D simulators, unit conversion calculators, custom-tool builders and other interactive tools, so made those must-haves from the get-go, too.

"This is not your typical sales and marketing brochure ware site," Schmitzer says. He tells of simulators that let engineers see how explosives would fire off in a borehole or how a perforation might affect an operation, for example.

Among all the features and functions found in the technical portion of myHalliburton.com, Lackey names these 3-D tool simulators and the way in which they're embedded in datasheets as what he is most proud of about the portal. "This leverages all the value of the Web in my mind. Now we have truly interactive technical content," he says.

Such interactivity can make a world of difference in how oil company engineers do their jobs. "We've seen situations where customers having issues with particular drilling tools have isolated problems really fast using simulators. In some cases, using the simulators, customers have even realized that problems they're encountering are because of the well, not the drilling tools," Lackey says.

And when oil field engineers need to make tough on-the-job decisions, they can rely on real-time visualization of well sites available through the portal. Schmitzer explains: At a well site, Halliburton often has 30 to 40 networked trucks loaded with equipment for data acquisition, computer-aided manufacturing capabilities and an Ethernet connection into a main computer. Halliburton processes the data locally and uploads it to an operations center in Houston over satellite links. It analyzes it to make recommendations to customers, who use the visualizations for confirmation on pumping decisions. "These are \$1 million jobs, so customers want to make decisions quickly," he says.

#### Getting the bills paid

With such online technical tools advanced since January, Halliburton in July moved into the second phase of development. The object of this phase, mostly completed by December, was to open Halliburton's internal workflow processes, via ERP functions, to customers, Lackey says. Customer procurement officers and accounts payable managers can now access and act on invoices, field tickets, job schedules, job resources and proposals stored in Halliburton's ERP system.

"Plumtree gadgets let us take applications from diverse back-end systems and present them through the portal in a uniform and easy-to-use fashion," Le-Blanc says, noting that myHalliburton.com attaches to more than 200 applications.

Anecdotal evidence suggests that letting portal users tap into back-end ERP functions helps customers pay their bills faster. Halliburton's on-site support personnel report reviewing involces online with customer account managers rather than waiting for the arrival of mailed copies. Online reconciliation means payment days earlier, Lackey says. With Halliburton's high-end products, "reducing even just one day in outstanding sales will deliver significant value," he adds. (Lackey says purchases run in the hundreds of thousands-to-millions range.)

Halliburton hopes to reap even greater benefits by extending the procurement workflow cycle to all customers. Ideally, any customer would be able to handle any aspect of the procurement process, from issuing a request for proposal to paying the bill, through the portal, Lackey says. Halliburton conforms to the American Petroleum Institute's XML-based electronic data standards for the procurement

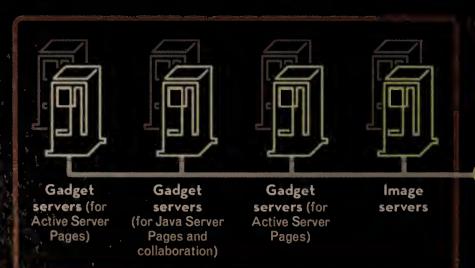
See Halliburton, page 56

#### Technology entanglement

Halliburton relies on Plumtree Gadget Web Services to deliver rich portal functionality.

These special Web services components pull data from an SAP R/3 ERP system for:

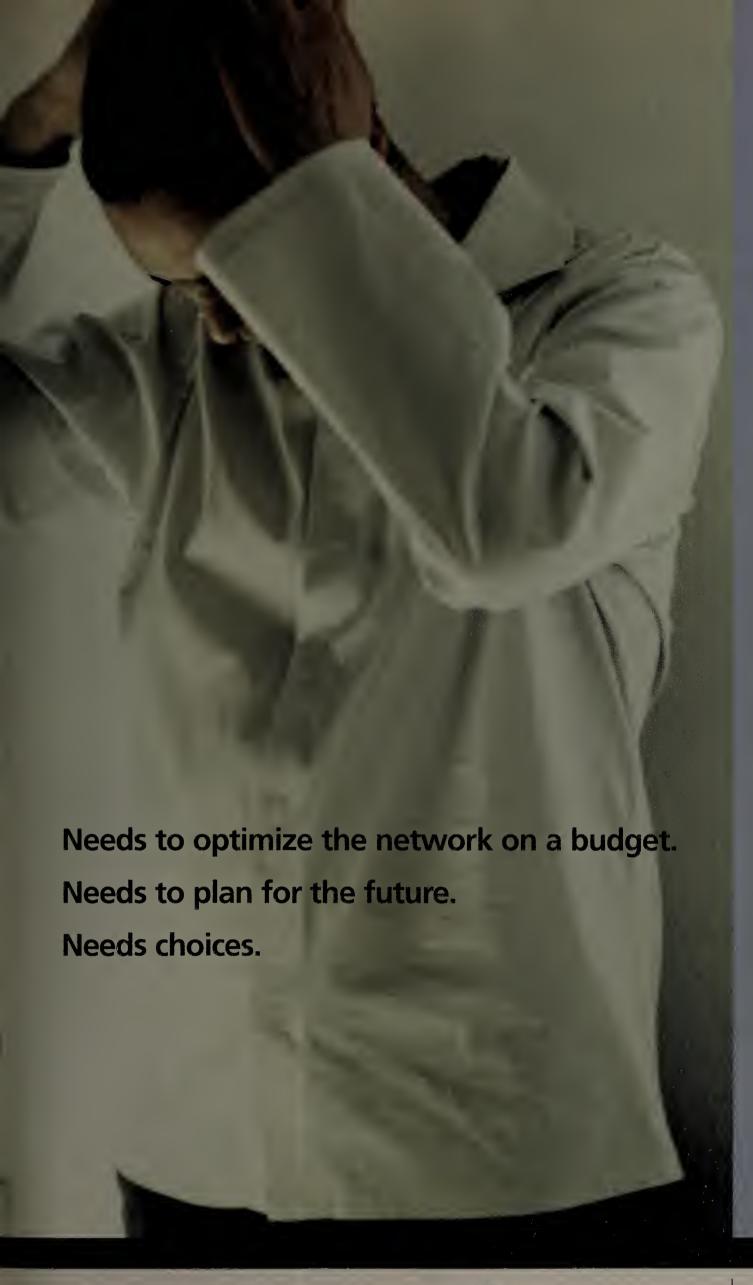
E-commerce. Customers can access field tickets, job schedules, job resources and proposals stored in Halliburton's SAP system. To yelso can check account this and pay invoices. Collaboration. Gadgets this de discussions and calendars for coordinating applications.



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#### Halliburton, sontinued from page 54

if confider able products and services, success the available through the point at an enduct business transactions with customers that emply with the standards. "We can end a chote, and they can send us

purchase orders that we can turn into sales orders," Schmitzer says. Missing is the ability to let customers that don't comply with these standards participate fully in the process. Those customers cannot use the custom tool configuration feature or a pricing tool, he says.

#### **Customers** and suppliers together

Collaboration, supported via Plumtree's Collaboration Server, is among the most critical features for both technical and business users. From myHalliburton.com, customers and Halliburton employees can share documents securely, participate in threaded discussions

and access calendars for coordinating project logistics. These functions, too, are delivered via the gadget services.

Opening that collaboration between employees and customers to suppliers is a likely target for third-phase development, Lackey says. "There is a lot of future in 24-hour expert access and third-party collaboration," he says. True supply-chain interaction is the goal, made possible by the merger of the supplier and employee portals into myHalliburton.com, he adds.

LeBlanc agrees that increased collaborative capabilities are a natural for the portal. "Employees, vendors, customers — it's all related workflow. We provide such unique engineering, that it sometimes is helpful for the customer, supplier and us to participate in discussions," she says.

#### Opening the architecture

While Lackey is spending the first quarter of 2003 researching and plotting his next moves for the portal, LeBlanc and Schmitzer are continuing to work on software and hardware changes needed to support the increasingly sizable portal environment. About 70 Windows servers handle the portal workload, with the Plumtree portal software integrating data from Microsoft databases and Web content servers, and from BEA Systems' application servers.

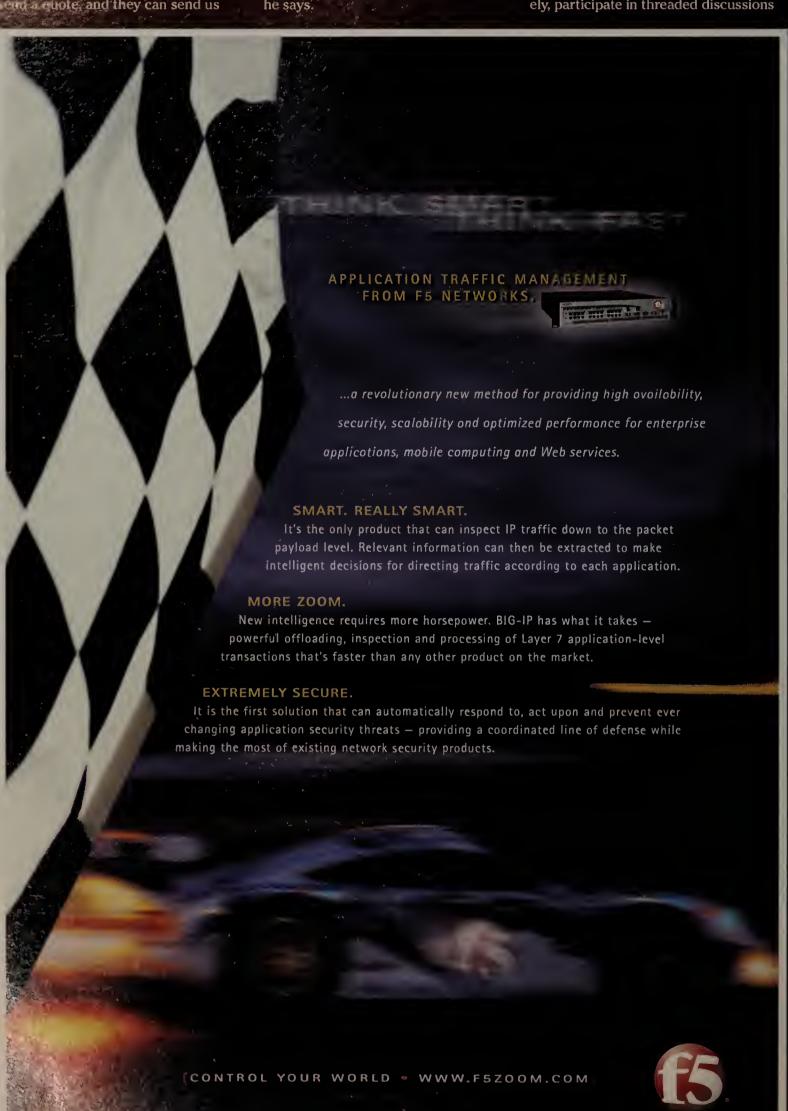
All servers currently reside in Houston, where the company is headquartered. But the developers are investigating the feasibility of adding servers in Latin America, Europe and the Pacific Rim to improve portal performance for those who have less-than-optimal bandwidth connections, LeBlanc says. An upcoming version of the Plumtree software will enable Halliburton to push content to local servers while maintaining the files centrally.

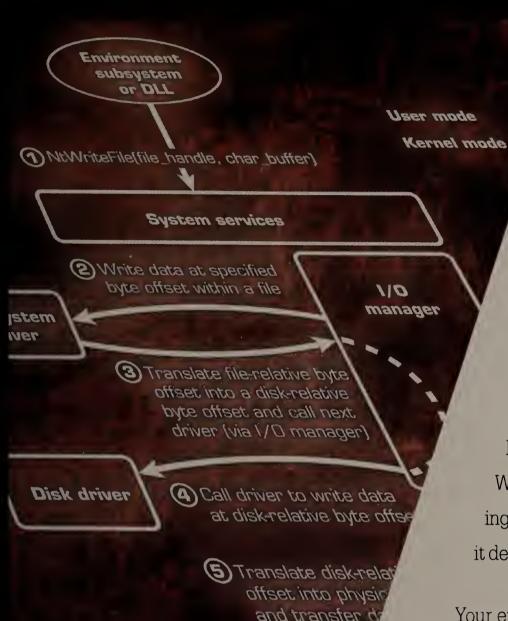
LeBlanc also envisions moving to a more open architecture than the Microsoft-centric one of today. "An open architecture inherently provides a better way of attaching to our disparate systems," she says.

While Linux-powered servers is a probable direction, LeBlanc says her focus for this year is on migrating application development from the Microsoft world of Active Server Pages to Java programming. "The portal environment is getting so large it's becoming difficult to make dramatic changes. We have to think of the cost benefits [of open source]," she says.

According to Lackey, Halliburton has spent \$5.3 million on the portal. It invested \$2.9 million in the portal project's first year for software and hardware expenditures, and had a \$2.4 million project budget for 2002, he says. Spending for this year will remain at that level, he adds.

Every dollar spent toward entangling customers with benevolence is well-spent, Lackey says. "This is something all companies should do."





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# Minternals



**■ BY ANN BEDNARZ** 

"The check-in line was too long."
"We didn't get enough towels."

"This room is too close to the elevator."

Complaints are a fact of life in the hospitality business. Hotels can't hope to satisfy all guests during every moment of their stay. But a hotel can control how its employees handle guest requests, with the help of a CRM system.

In the past, individual Sheraton hotels devised their own systems for dealing with complaints — "including writing them down on the back of a napkin," says Kevin Vaughan, a senior vice president with the IT division at Sheraton's parent company, Starwood Hotels & Resorts Worldwide, in White Plains, N.Y.

Last year, Starwood decided to formalize the process. Using application server software from IBM and interactive client software from Nexaweb Technologies, the IT group built a Webbased application that logs and tracks guest problems throughout 200 Sheraton hotels in North America.

The application gives Starwood new visibility into problems that guests experience. While Starwood had other corporate systems in place to collect and analyze transaction data and customer demographics, it was missing this piece of the CRM puzzle. Extending CRM to the farthest corners of the Sheraton properties lets Starwood witness even the most mundane customer requests and use the data to construct a chainwide view of customer satisfaction.

Similarly, financial services firm Household International decided to provide CRM applications at its outposts — 1,500 branch offices in 42 states where employees sell consumer mortgages, loans and credit products. To handle CRM at the branches, the company installed network gear from Vertical Networks that turned each branch into a call center, with

advanced call routing, monitoring and reporting features.

In both cases, IT executives undertook the CRM projects to

meet corporate performance-improvement objectives and to make life easier for employees working directly with customers. Success of CRM projects rests on the latter, experts say.

CRM is known for being complex, expensive and often disappointing — a reputation earned in its early days when companies tried to overhaul massive customer systems in one fell swoop. Today, experts advocate short, focused CRM projects with clear objectives. AMR Research says companies that don't use CRM to boost productivity on day-to-day tasks "are constructing an expensive house of cards that will likely topple."

Customer-focused initiatives are particularly important in a poor economy. CRM is more crucial in times of weak spending, as companies need to find ways to attract and retain customers, says Kelly Spang Ferguson, analyst at Current Analysis.

#### The Sheraton way

Starwood's customer-response system, called StarGuest, complements Sheraton's broader Service Promise program, which ensures guests a great stay or the hotel will make it up with a gift certificate, loyalty points or refund.

Consistency is a key aspect of Sheraton's Service Promise program. If someone at a Sheraton hotel in Seattle receives a gift certificate after a poor experience with room service, Starwood wants the same reward system to be applied to similar situations in Boise, Boston, Baton Rouge and at every Sheraton in between.

The Web-based StarGuest application is one means of enforcing consistency. If a guest registers a problem or complaint, a hotel staffer enters the information into StarGuest using a PC or mobile device. The system identifies fair compensation, based on preset conditions; alerts hotel employees with appro-

priate skills, via e-mail, to the tasks that need to be completed; and tracks the problem's resolution. Once a problem is resolved, a hotel employee closes the trouble ticket in the application.

For the hotels, the StarGuest application provides a way to expedite problem resolution and provides a tool for spotting problem areas. For example, an unusual number of housekeeping complaints concentrated on the 11th and 12th floors might indicate that a new staff member needs more training, Vaughan says.

"Instead of finding out a month later when the property gets its customer-satisfaction scores, the manager has real-time data to look at and see what's going on," he says. A problem can be corrected before a guest leaves unhappy and more guests are affected.

Using StarGuest's centralized reporting features, Starwood can spot trends and identify problems at a chainwide level. "If there are 15 or 20 hotels with recurring plumbing problems, that's something that might need to be addressed in the capital budget," Vaughan says.

Technologically, the application's bandwidth-agnosticism is its beauty. Hotels that don't have broadband Internet access can use the application, as can employees equipped with wireless handheld devices. Unlike the case with many CRM applications, functionality isn't compromised. This is because of the Nexaweb Smart Client Platform, which sits on top of IBM's WebSphere application server, Vaughan says.

#### Bandwidth, thin or fat

Nexaweb's development tools are designed for building distributed applications with interactive clients, such as Starwood's StarGuest application. Unlike typical browser-based applications that require multiple round-trips between Web server and client devices to render screens, Nexaweb's "user interface server" uses a device's local processing power to execute code within a single screen and without multiple client downloads. By replacing the user interface portions of Java Server Pages code with XML-based User Interface Language, Nexaweb can achieve a desktop-like performance over even thin network connections and speeds, the company says.

The system works with Starwood's existing infrastructure and lets the company lower its operational costs associated with developing and managing Web-based applications, Vaughan says. Before availability of the StarGuest application, a handful of hotels had bought software on their own for tracking guest requests — duplicating efforts throughout the process of acquiring and deploying packaged software, Vaughan says. "It was clear that a system that was at an individual property level was not the right answer," he says.

For now, StarGuest is a stand-alone application. But down the road, Starwood plans to integrate StarGuest with its other CRM systems. This way, if an employee were to type in "Room 411" the application would be able to tap into transaction systems and immediately identify who the guest was, if the guest was a frequent visitor and the guest's personal preferences, he says. And if a guest had a problem during a stay, the software automatically could prompt marketing employees to follow up with a personal note, apologizing for the problem and offering an incentive to return, such as a free upgrade to a suite.

A broader deployment also is on tap. Starwood has deployed test versions of StarGuest to some of its W and Westin properties, Vaughan says. This year, progress will continue at these chains.

#### The Household approach

Like Starwood, Household International wanted a clearer view of how employees in remote offices were handling customers. The Prospect Heights, Ill., company wanted to be able to monitor consumer lending sales staff and see how employees were chasing sales leads.

As it was, Household had no insight into the specific activities of salespeople at the branches. Household's corporate marketing efforts were generating 5 million leads per month, but only 40% of those leads were being worked actively, says John Armstrong, managing director of networked systems at Household.

While Household's large corporate call centers had tools to manage

agent productivity, the branches didn't, he says. The business challenge was "to make 10,000 remote agents appear as if they were all in one call center and do all the things that we normally would do in a call center," Armstrong says.

17, 200

However, to do so required more than the average CRM application. Each branch needed advanced call-center features, such as call routing, call monitoring and automatic sales prompts that pop up on agents' screens.

Consolidating sales functions into regional call centers was an option, but Household found that customers preferred to deal with local branches. The company also explored a few options for bringing call-center features to its branches, such as predictive dialer systems, traditional PC-based solutions, and pure IP PBXs. It selected Vertical Networks' InstantOffice platform and started deploying the gear in November 2001 — at a pace of 200 branch offices per month.

The InstantOffice gear let Household revamp and consolidate its voice and data communications on a single IP PBX. In the process, Household upgraded its branches from 56K bit/sec WAN connections to T-1 lines that carried voice and data traffic. The system delivers the callmanagement capabilities that Household needed, Armstrong says. "We know when the salespeople are calling, how much time they're spending on the phone and which accounts they're really working," he says. "In addition, we're getting more information about our customers."

Today branches can handle inbound and outbound calling activities locally, and corporate can capture the data it needs. "Not only can the branches be their own call centers, but collectively they can look like one big, virtual call center," Armstrong says.

With better sales lead management tools — and greater accountability to corporate higher-ups — the sales teams reached Household's goal of increasing sales by 15% to 20% last year, Armstrong says.

Eventually, the system, which is tied to Household's new, internally developed computer-telephony application, will incorporate caller-identification information so that a loan agent automatically will have access to customer records when calls arrive, he says.

Also on deck are automatic call-scheduling features for providing loan updates to customers and the ability to place phone calls from an agent's PC via the CRM system interface.

The system costs \$12 million — but it's been paying for itself since the start, Armstrong says. "The net is actually positive. We took out more costs than we added to this equation," he says.

At the same time, Household managed to increase the data bandwidth at each branch. Now Household plans to deploy more bandwidth-intensive applications to its branches, including image-heavy appraisal software, document management and enhanced e-mail software, Armstrong says.

#### Simplicity, consistency

Armstrong's advice to other companies considering branch-office CRM projects is to keep things simple. Adhering to a standard configuration for all 1,500 branches let Household deploy the Vertical gear quickly and support it remotely.

He also advocates minimizing the amount of change to remote sales agents' habits. From the agents' perspective, Household's new sales lead management system looks a lot like the old one, he says.

The plan is to add features gradually as users become accustomed to the new system.

Similarly, Starwood's CRM project is all about consistency. By reducing the number of applications individual properties choose independently, Starwood is conserving development, deployment and maintenance efforts.

These kinds of decisions make for a successful CRM project.

Getting close to the customer is especially important in a poor economy.

"CRM is more crucial in times of weak spending, as companies need to find ways to attract and tain customers."

elly Spang Ferguson



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# APPROACH TO APPROACH TO WEB SERVICES

#### **BY ROBERT MCMILLAN**

Is Web services development too complicated? A small but influential group of Web developers thinks so. These developers advocate a new approach — one they say is simpler than the World Wide Web Consortium's Simple Object Access Protocol-based model favored by application development tool makers such as BEA Systems, IBM and Microsoft. This new architectural approach, called Representational State Transfer, also results in more scalable code, they say.

Among the more noteworthy REST backers are Roy Fielding, chair of the Apache Foundation; and Sam Ruby, a senior developer and Web services guru at IBM (although IBM itself does not support REST). And developers at Web powerhouses Amazon and Google have experimented with REST to create interfaces to their popular Web services. Recently Thomson Publishing Asia Pacific used REST to create a Web-based typesetting service for its legal publishing group in Sydney, Australia.

#### **REST** at work

REST relies on a single application protocol (HTTP), universal resource indicators (URI) and standardized data formats, through XML. It employs established HTTP methods such as GET and POST to direct applications. So instead of creating a standard, machine-readable way for applications to discover and use



application components on remote systems — the way SOAP is being used for Web services — REST developers use URIs to create a common ground so applications can use HTTP and XML to share data. REST developers use XML documents rather than applicationmethod calls to tell distributed programs how to use each other's data.

REST proponents say that using the SOAP protocol to access the functions of remote programs directly is doomed to suffer from the same type of interoperability problems that hobbled previous distributed computing architectures such as DCOM and Common Object Request Broker Architecture.

Security problems also will plaque SOAP, says Mark Baker, an independent Web architecture consultant and one of the maintainers of a REST resource site for developers. Because firewalls do not understand the meaning of SOAP-based Web services messages, they will never let those messages pass, he says.

REST messages don't have this problem, Baker says, because they only use operations specified in the HTTP standard — operations that are well-understood by fire-wall applications and administrators. (Vendors, of course, are addressing the SOAP issue by developing Web services security standards and products, just as they developed firewalls and security standards for HTTP.)

#### **REST** the best

Before deciding to use REST for its Web-based typesetting service, Thomson Publishing considered SOAP. Developers chose REST to write a wrapper around the company's typesetting software because it offered superior performance, reliability and scalability to SOAP, says Hao He, a Web architect with the company.

Using the wrapper — called the Generic Typesetting System (GTS) — Thomson can now more easily typeset documents from different data sources, be they legislative bodies, courts or government agencies. "Before using this technology, we'd have to write a specific solution for each new data source," He says. "Now we are able to rapidly create RESTful Web services that reflect typesetting workflow specific to Thomson."

REST's document-centric approach made it particu-

# Before choosing SOAP for your extended enterprise's Web services, consider Representational State Transfer.

larly appropriate for Thomson. With every new typesetting job, the user creates XML documents, and the GTS handles the rest: feeding the XML documents into Thomson's proprietary typesetting system as it becomes available. "Although the system can only handle one process at a time, the user can send any number of requests," He says. "The GTS handles resource management tasks, such as job priority and load balancing, separately and makes the overall system efficient."

#### A real sleeper

As positive as early REST user experiences have been, a lack of tools is a big obstacle to widespread adoption, critics say. As yet, no big application development vendors have committed to REST, although they do seem to be taking it seriously REST has "some very important characteristics that we are examining," says David Orchard, technical director at BEA.

Still, commitment from the tool makers might be necessary before REST makes any inroads. Products such as Microsoft's Visual Studio .Net or IBM's WebSphere, automatically produce SOAP-based Web services.

"From a product perspective, REST is almost invisible," says Ronald Schmeltzer, a senior analyst with Zap Think. "If the REST people want to have their day, they're going to have to get it into the tools that create or consume Web services."

Baker disagrees. He says virtually any HTTP-compliant tool could be used to develop REST Web services. "There are a whole lot of REST tool kits available, it's just that people don't know what they are," he says.

The same tools that create Java servlets could be used to build REST-based Web services, Baker says. "They follow the HTTP specification, and by following it, they implicitly are following the constraints of the REST style," he says.

BEA's Orchard suggests that REST might one day co-exist with SOAP as developers seek out multiple techniques for Web services styles. "Sometimes there is more than one way to skin a cat," he says.

McMillan is a freelance writer in San Francisco. He can be reached at bob@filbert.net.

#### **REST vs. SOAP**

Differences between the Representational State Transfer and Simple Object Access Protocol-based approaches to Web services development.

#### **Standards**

**REST** promises to make Web services available using existing Internet standards.

The **SOAP**-based approach involves a range of emerging standards, not all of which will be adopted.

#### Tools

Many development tools support **REST** standards such as HTTP and XML, but commercial REST tools don't exist.

Application tool vendors are building **SOAP**-based pro-ducts aimed at making the development and deployment of Web services as easy as any other kind of application development.

#### **Developer support**

REST developers are in the minority, and most vendors say enterprise users aren't demanding REST services yet. But REST is generating a buzz, and is poised to capitalize on any market sentiment that SOAP-based Web services are overhyped.

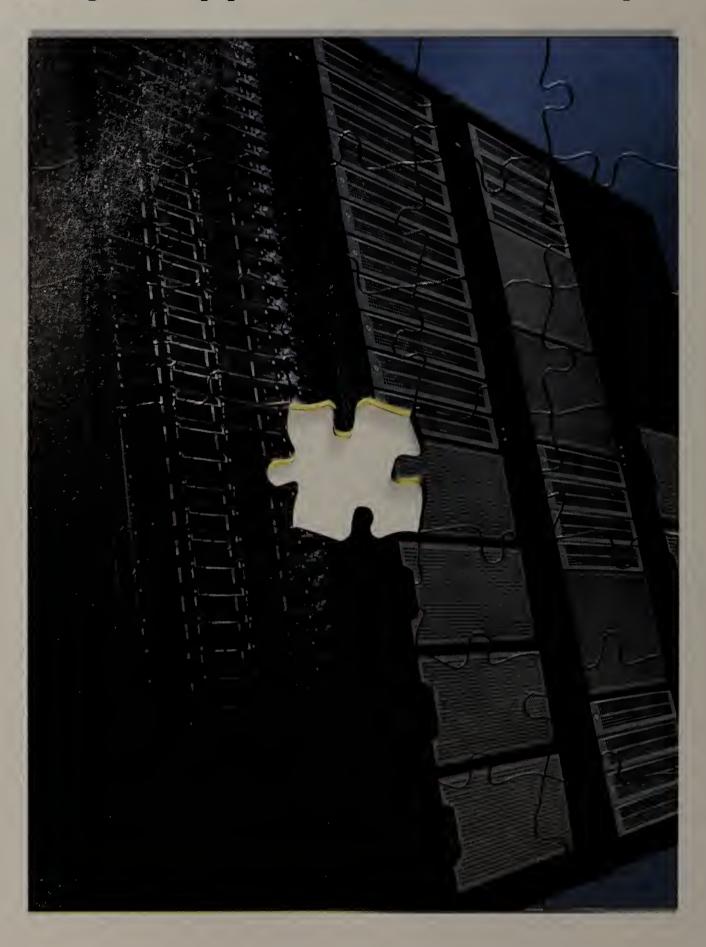
Major application development tool vendors BEA Systems, IBM and Microsoft offer **SOAP**based kits for Web services development.

#### Security

REST advocates say their way of doing Web services is more secure because of its reliance on the Internets existing security infrastructure.

The **SOAP** security story still is developing, but it promises to give administrators greater control over who accesses Web services and what rights those users have.

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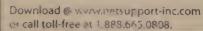
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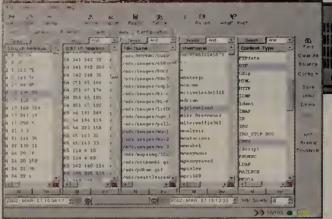
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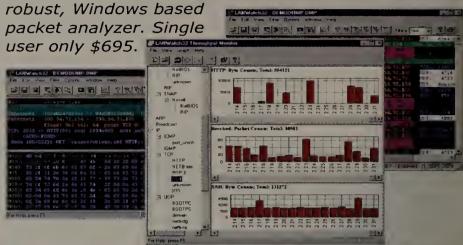
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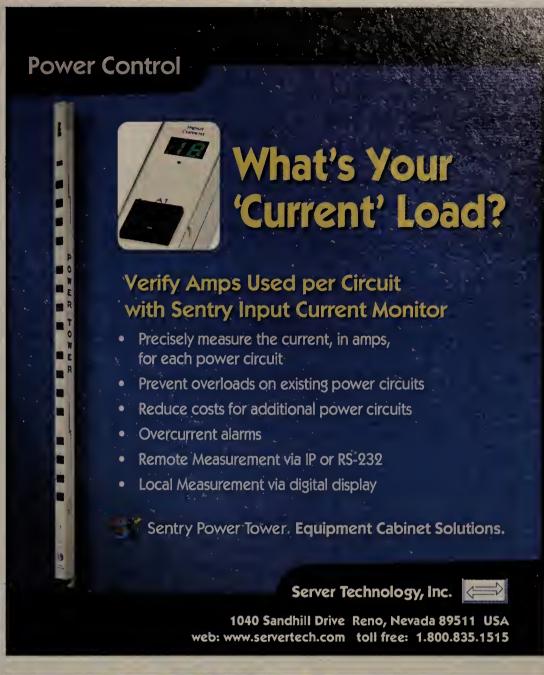
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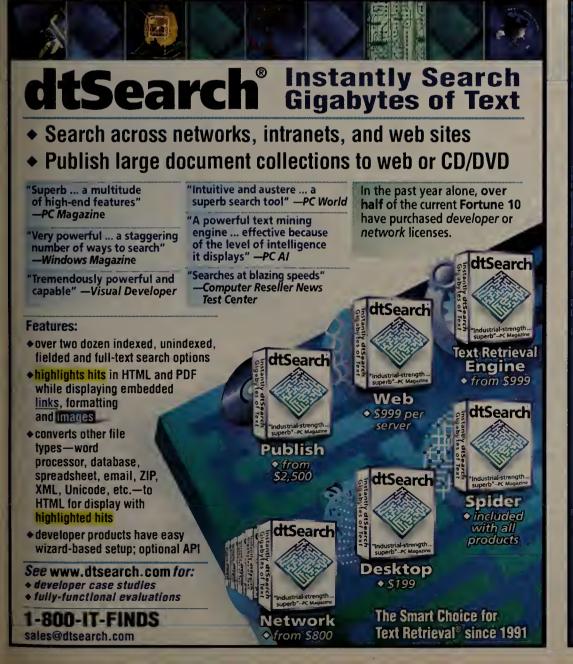
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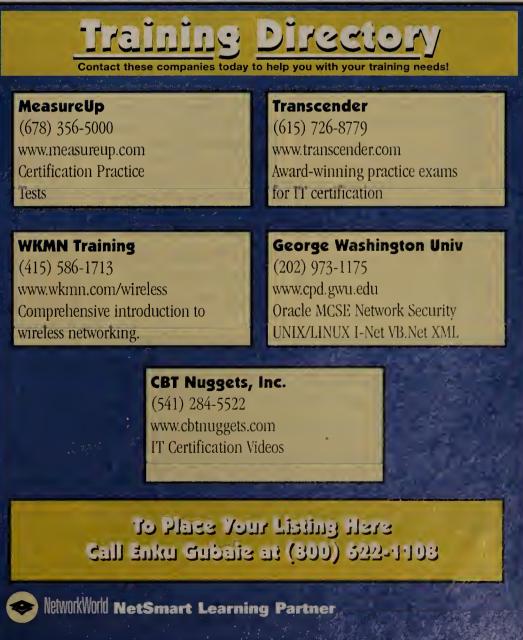
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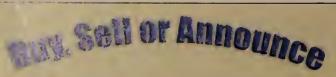


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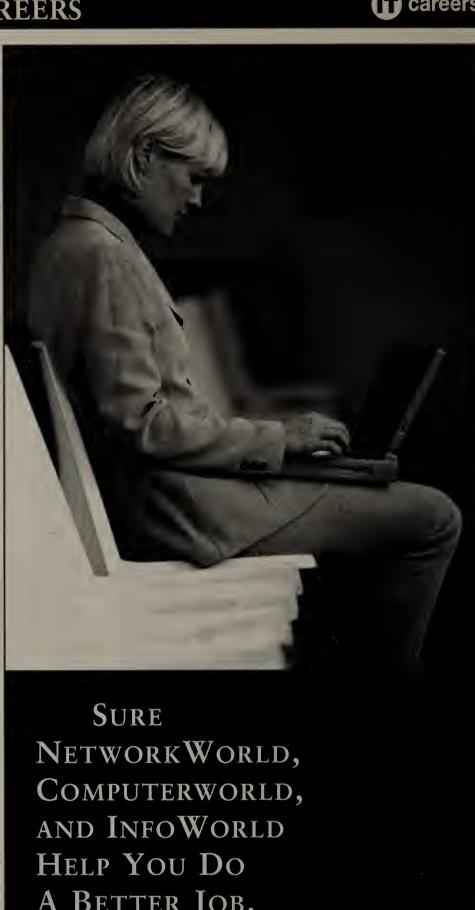
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Editorial II	naex
3Com.	19
<b>-</b> A	
Alcatel	7
Apple	19
Array Networks	
Aruba Networks	14
Avaya	7
■ B	
BBX Technologies	7
BellSouth	27
Blue Coat Systems	17
■ C	
Cable & Wireless	27
CipherTrust	
Citrix Systems	27
Cyber-Ark	23
■ D	
DataViz	0.4
Dell	20
FMC	20
LIVIL	
<b>■</b> F	
ForeScout Technologies	36
■ H	
HP.	23

Advertiser Index

. 68

Avocent 62 www.avocent.com
Cusco Systems 19 www.nwfusion.com/cisco/infrastructure

12-13

F-5 Networks 56 www.f5zoom.com Fluke Networks 40 www.flukenetworks.com/wireless

Nortel Networks 47 www.norteinetworks.com/onenetwork

69

Alcatel Data Networks

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ystems Manufacturing Corp. 69

Amplify.net, Inc.

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VBrick Systems Inc. Western Telematic Inc.

Winternals Software

Euntsu

■ i	
IBM	10, 23, 5
InfoExpress	4
Interactivetools.com	
Intuit	2
ıPass	2
ITWorx	1

7
18
8, 37, 52
7

Mitel Networks	7
■ N	
Netegrity	23
Network Appliance	10
Network Associates	17
Nexaweb Technologies	58
Novell	19

■ 0	
Oblix	23
■ P	
Plumtron Software	50

■ P	
Plumtree Software	.52
Proxim.	34
<b>■</b> Q	
Q-Spam	18
Owest	27

Adtran

BoldFish

Brocade

Compaq

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F5 Networks

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\_\_\_\_\_\_22\_www.nwfusion.com/gocv/vadv6

63 www.cyclades.com/nw

69 \_\_\_\_www.dtsearch.com

11 www.ftsufujitsu.com/ad

6 \_\_\_\_www.kyoceramita.com www.cng.nec.com

64 www.netsupport-inc.com

53 www.NetworkStorageU.com

26 www.sap.com 68 www.sandstorm.net

2:3 sun.com/whynot

60 www.vbrick.com/vbstarasp

www.servertech.com

\_66, 68 www.networkinstruments.com

21 www.nwfusion.com/sony/DDSNW

76 www.ibm.com/websphere/portalplay

9 www.alcatel.com/enterprise

\_\_www.avava.com/ip

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		Z

#### Network World, Inc.

19

8

17

20

18

27

8.28

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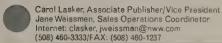
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(201) 587-0090/FAX: (201) 712-9786

NOTHIEAST Donna Pomponi, Regionel Sales Manager Caitlin Horgan, Seles Assistant Internet: dpomponi, chorgan@nww.com (508) 460-3333/FAX: (508) 460-1237

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#### ■ Network World. 118 Turnpike Road, Southborough, MA 01772-9108, (508) 460-3333.

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### BackSpin Mark Gibbs



## Racing to instant messaging

o there I was Googleracing with my friend Sandy and this particular race was more like a cross-country marathon than a sprint. And she pointed out that ... pardon? Oh, what is Googleracing?

Ah. Well, have you heard of Googlewhacking? This is a fabulously geeky pastime wherein you try to find two English words that, when typed into the Google search engine, are found on one, and only one, Web page (the definitive site for aficionados is www. googlewhack.com/).

Since then, other games have emerged such a Googlisms (www.googlism.com/), which searches for statements about people and things, and Google-spolling (my name for it) whereby you search for pages with misspellings in the hope of finding amusing gaffs. For example, go to Google and search for physic readings. But I digress.

Google acing is yet another game played with Google. The game starts when two or more people are on a telephone call when a question comes up that no one knows the answer to. The Google begins to find the answer and the person who finds it first wins.

In the case of the race I had with Sandy we were talking about a business project, and the conversation wandered. We wound up arguing over the exact words of the Saturday Night Live sketch where Dan Ackroyd, playing the part of a politician in a debate, turns to his female opponent and says "Jane, you ignorant slut."

Turns out that even with Google's help finding the script for that show is tricky. But Sandy's search discovered the only two sites with the complete text (for example, www.nwfusion.com, DocFinder: 4347) in something like 50 seconds.

Anyway, where was I? Oh yes, so Sandy was in San Francisco and she pointed out that we should really be chatting using instant messaging. When I first came across instant messaging I thought it was neat but not of much value to business. At the time, none of my business clients and colleagues were on it so it didn't seem too useful. How wrong was I? Very.

It turns out that quite a few of my business associates are now using instant messaging, and it seems that instant messaging is becoming a critical component of corporate communications. There are several reasons for this.

First, instant messaging is immediate and less intrusive than other messaging methods. Second, instant messaging is low impact — messaging products are free or low-cost, the management overhead can be as low as you like, and the bandwidth use is trivial. Third, it provides a new dimension to communications — the awareness of the availability and status

of the other members of your team, your department or even your whole organization.

Of course, in a corporate setting you might want to ensure (or require for legal reasons) strict control of instant messaging. And because there are lots of related collaboration tools that don't interoperate, there's also the Tower of Babel problem to solve (or should that have been Tower of Babble?).

Products such as Envoke from Asynchrony Solutions (www.asolutions.com) are emerging to address these issues.

Envoke makes instant-messaging systems secure, auditable bridges between different collaborative systems such as CUSeeMe and Lotus SameTime, and provides multiple client interfaces: A Web portal, a stand-alone Java client, and a Palm OS client for wireless communications.

An interesting extension to the Envoke system is an API that can add computer service connections to instant messaging. For example, a back-office database could be queried interactively just like any other instant-messaging user.

This kind of depth of service will make instant messaging part of your communications strategy rather than the liability that a user-driven ad hoc solution will be.

Message me instantly at backspin@gibbs.com.

# By P When

# 'NetBuzz News, insights, opinions and oddities

#### By Paul McNamara

#### When criminals come a-callin'

Listen to Kevin Mandia describe the misery visited upon his company's clients by criminal hackers — real criminals, not mischief makers — and you can't help but come away shaking your head.

You also can't help but wonder about the business ethics of some of those clients, but I'm getting ahead of myself.

Mandia is director of computer forensics at Foundstone, a security outfit that helps big-name corporate clients "prevent, respond to and resolve enterprise security issues." He told an audience at last week's CyberCrime 2003 Conference that "the threat today is worse than ever" and that most criminal hackers are overseas — in particular, the former Soviet Union — where they are so immune from law enforcement that some make no effort to conceal their identities.

Credit card numbers and hard goods are the most sought after plunder, but an increasingly popular fall-back position has become extorting cash from compromised companies, or, as Mandia calls them, "the folks most loath to say "We have a computer security problem."

How reluctant are victims to admit they've been had?

Mandia told of one company that lost \$5 million worth of hardware to an online scam, yet didn't even confess the loss to its board of directors. Another's IT department waited 27 days from when an extortion e-mail arrived to even notify the company's top executives.

Mum's the word, all right, which isn't good news for consumers.

Mandia recounted a case where the victimized company's lawyer suggested indidual notification of what was believed to be 17,000 customers whose credit card or bers had been compromised. When Mandia cautioned that a closer look at the breach might reveal a broader problem — perhaps 500,000 lost numbers — and necessitate a blanket public notification, the company rethought the matter.

"I heard the general counsel say the following semi-compelling argument: He said there is nothing our clients could do to prevent the identity theft [they might suffer as a result of the breach]," Mandia said. "They aren't going to change their name, they aren't going to move, and they can't change their mother's maiden name. So, risk vs. reward, we lose more by telling them than they could gain if we tell them."

Sure sounds like something a lawyer might say. And they didn't tell anyone.

"Weeks later I thought about it, and there is something [a credit-card holder] can do," Mandia continued. "You can start calling credit agencies and get reports and find out if there are four new Visa cards in your name. . . . They didn't consider that."

Financial institutions are required to report stolen credit card data but your run-ofthe-mill e-commerce site is not, Mandia said, or at least there are differences of opinion as to what the law requires. This leads to self-serving rationalizations such as: "Until the cards are used, let's not report it to anyone."

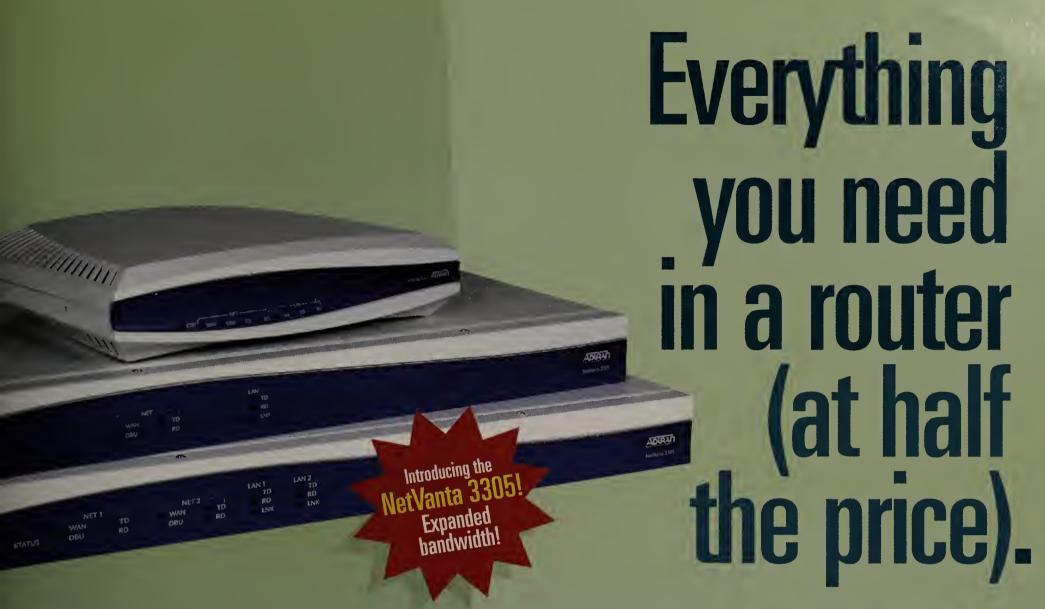
As for the extortionists, they're laughing all the way to the bank.

"They're extorting you with real bank accounts," Mandia said. "[Their e-mails read] 'Here is my bank account. Please transfer the money here.' So there's no real mystery as to who is behind this. The other weird way of looking at this is that once you get extorted, that's the good news: It means they didn't get credit card numbers from you and they can't fraudulently purchase anything from you."

And there's even more "good" news: Extortion payments are negotiable, according to Mandia. Companies are getting off the hook for as little as a few hundred dollars. One extortionist even asked, "What fee do you think is reasonable?"

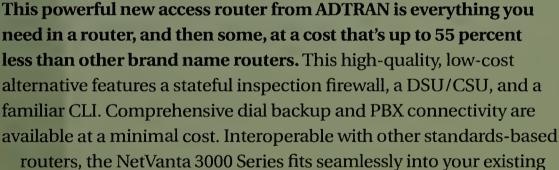
Finally, Mandia said about half the cases he's privy to ended in quiet payments and that he hadn't heard of a single instance where the extortionist came back for more. Who said there's no honor among thieves?

Columnists don't hide either. The address is buzz@nww.com.



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